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10-27-08

THE CITY OF SAN DIEGO

OFFICE OF THE INDEPENDENT BUDGET ANALYST REPORT

Date Issued: October 24, 2008 **IBA Report Number:** 08-112

City Council Docket Date: October 27, 2008

Item Number: # 200

2009 Water System Bonds

OVERVIEW

The proposal to approve not more than $638 million of 2009 Water System Bonds involves a **two-phase** financing plan to 1) refinance outstanding short-term and long-term water system debt and 2) finance the continuation of improvements to the water system.

The **first phase** involves the issuance of **2009A Bonds** with two objectives in mind. The first objective is to refund $57M of two-year, privately placed notes (2007A Notes). These notes were purchased by Morgan Stanley in January 2007 (due January 30, 2009) and will be refunded with publicly offered, fixed-rate bonds with a 30-year term. Depending on bond market conditions and in order to reduce borrowing costs, the second objective is to refund the maximum amount of 1998 Water System Certificates of Undivided Interest (1998 Certificates) provided that the net present value of the economic savings is at least 3% of the refunding bonds in accordance with the City's Debt Policy. Approximately $245M of the 1998 Certificates are currently outstanding. The 2009A Bonds will be issued in January 2009.

The **second phase** involves the issuance of **2009B Bonds** and has three objectives. The first objective is to debt finance $150M of projects within the Water Department Capital Improvement Program (CIP) through June 2010. The second objective is to refund a $150M eighteen-month, private note (2008A Notes). These notes were purchased by JP Morgan Securities in February 2008 (due August 28, 2009, but refundable without penalty beginning in February 2009) and will be refunded with publicly offered, fixed-rate bonds with a 30-year term. The third objective is refund any of the remaining eligible maturities of the 1998 Certificates, again provided that the net present value of the economic savings is at least 3% of the refunding bonds. The 2009B Bonds are planned to be issued in April or May 2009.

This IBA has reviewed the staff reports issued by the Water Department (#08-147), Debt Management (#08-148), and other bond related documents that have been distributed. Additionally, we have met with the City's financing team to discuss the proposed 2009 Water System Bonds. This report provides comments on various elements of the contemplated financing that may not have been addressed in the staff reports.

FISCAL/POLICY DISCUSSION

Background for Water System Financing

In response to a California Department of Health Services (DHS) Compliance Order, the City Council adopted a Water Strategic Plan in August 1998 that included an eight-year plan for capital improvements. Bonds sold in the public capital markets in 1998 and 2002 largely financed the first two phases of the Water Capital Improvement Program (CIP). Because capital assets financed in the CIP typically have a long-term useful life, the Water Department appropriately strives to fund 80% of these long-term capital assets with long-term debt and the remainder with cash. This ensures that the cost of long-term assets will be more equitably shared by generations of beneficial users.

By March 2006, the Water Department had fully expended bond proceeds and began to entirely cash fund capital projects required by the DHS Compliance Order. Until recently, the City's financial situation precluded the Water Department from issuing bonds in the public financial markets. In order to begin to restore the Water Department's 80%-20% debt-cash financing objectives in 2007, the City Council authorized a $57M private placement of the 2007A Notes in January 2007. Proceeds from the 2007A Notes were used to reimburse approximately 80% of cash-funded projects and finance other capital projects in the CIP. The City Council subsequently authorized a $150M private placement of the 2008A Notes in February 2008.

As discussed in the Water Department's Report (#08-147), proceeds from the 2008A Notes are anticipated to be exhausted by May 2009 based on construction cost estimates and construction schedules. Project expenses after May 2009 will be entirely cash funded unless additional debt financing is available.

Planned Review and Approval Process for the 2009A Bonds and the FY 07 CAFR

With the exception of the Preliminary Official Statement (POS) and the Bond Purchase Agreement (BPA), all of the other necessary documents for the 2009A and 2009B bonds will be approved by the ordinance being introduced on October 27, 2008. This ordinance will receive a second reading at the City Council on November 10, 2008. If approved, the ordinance will become effective 30 days thereafter in mid-December. This timing is necessary to allow the POS to be printed and distributed to the public markets for consideration before the holidays.

Approval of the substantially completed POS and BPA for the 2009A Bonds will be sought by resolution on November 10, 2008 in conjunction with the second reading of the

ordinance. However, the City Council will be able to discuss the POS and the BPA with the financing team on both October 27th and November 10th. In a related matter, the CFO also plans to docket the audited FY 07 CAFR for City Council review and acceptance on November 10th. This is mentioned because the distributed version of the POS has multiple references to unaudited FY 07 figures. Now that an unqualified audit opinion has been received from the City's outside auditors, a revised POS will be distributed to the City Council prior to November 10th reflecting the now audited FY 07 data.

Timing Requirements and the Proposed Pricing Parameters

In order to pay off the 2007A Notes when they become due on January 30, 2009, the City needs to sell (price) the bonds by mid-January 2009. This allows approximately two weeks to finalize bond documents and receive bond proceeds, which is usual timing for a bond issuance. As shown in the timeline on page 6 of the Debt Management Report (#08-148), the proposed schedule for the 2009A Bonds must be achieved to facilitate timely refunding of the 2007A Notes. Because the need for new bond financed capital is months away and expected to precede the maturity of the 2008A Notes by a few months, there is more flexibility to adjust timing and/or react to bond market conditions when issuing the 2009B Bonds.

Section 4 of the ordinance asks the City Council to authorize two pricing parameters for the 2009 Water System Bonds. The first pricing parameter specifies that the true interest cost not exceed 7% on bonds issued to pay off the 2007A and 2008A Notes as well as the new debt issued to finance the Water CIP. The second pricing parameter specifies that the true interest not exceed 4.85% on bonds issued to refund the 1998 Certificates, which is necessary to achieve the requisite net present value savings threshold of at least 3% of the refunding bonds.

Recent bond market pricing levels for comparably rated credits suggest pricing levels that range between 5.93% and 6.24%. Given the recent volatility in the financial markets, it is possible that these pricing levels could change more even significantly than would normally be the case between now and the pricing in mid-January 2009. In the past, the IBA has supported the City Council's concern that pricing parameters not be authorized at levels that were significantly above current or reasonably forecasted market levels (the statutory maximum interest rate is 12%). However, the IBA notes that the financial markets have been extremely volatile in recent weeks and recommends that City Council consider increasing the pricing parameter to pay off the 2007A Notes to 10% to better ensure that the City can satisfy its hard obligation to retire the 2007A Notes by January 30, 2009. Alternatively, the City Council could ask the financing team to explain if other refunding options exist (restructuring the 2007A Note borrowing directly with Morgan Stanley, City interfund borrowing, etc.).

The IBA notes that the financial markets have been extremely volatile in recent weeks and recommends that City Council consider increasing the pricing parameter to pay off the 2007A Notes to 10% to better ensure the City can satisfy its hard obligation to retire the 2007A Notes on January 30, 2009.

Approved Water Rates and Debt Service Coverage

In February 2007, the City Council approved a series of four 6.5% annual water rate increases to fund the CIP during this period. The City's Debt Policy requires a debt coverage ratio of at least 110% be maintained for all revenue bond debt. The outstanding 1998 Certificates actually require a higher 120% coverage ratio. Conservatively assuming that 2009 Water System Bonds are priced at 7%, without factoring in any savings attributable to refinancing the 1998 Certificates, the financing team has calculated that the average debt service coverage for all water debt remains above 150% which is strong and should be favorably evaluated by both rating agencies and potential investors. It should also be noted that the Water Department forecasts they will need to debt finance another $124M of water system project improvements in FY 11 using the above referenced rate increases.

Improvements to be Debt Financed with 2009B Bonds

The 2009B Bond issuance is anticipated to generate $150 million in "new money" proceeds for Water infrastructure projects. As discussed in the Water Department Companion Report (#08-147), approximately $103.8 million is anticipated to fund Department of Public Health (DPH) required projects, while $25.2 million will fund DPH related projects. Attachment 2 to the Water Department Companion Report provides a list of the projects that will be funded with these new money proceeds. The IBA has cross-checked this list of projects against the rate case approved in February 2007, and with two exceptions, we confirm that these projects are consistent with the capital plan established in the 2007 rate case. The two exceptions are the Carmel Valley Reclaimed Water Pipeline and the Los Penasquitos Canyon Reclaimed Water Project, with respective funding amounts $3.7 million and $2.6 million. While these appear to be established CIP projects, it is unclear whether they were included in the 2007 rate case.

In addition to the project list, the Water Department Companion Report also includes a DPH Quarterly Status Report for the period ending June 30, 2008 (Attachment 3 to the Companion Report). This Quarterly Report from the Water Department provides an update to DPH on the status of specific projects required under the Compliance Order. The IBA found this report very useful not only in providing an overview of DPH-required projects, but also in demonstrating the significant progress that the City has made on meeting the requirement of the Compliance Order. The IBA believes that additional funding from the 2009B Bonds will further the progress toward meeting these requirements.

Actions/Issues Related to the Costs of Issuance

Costs of issuance for the 2009 Water System Bonds are currently estimated to be $1.36M or 2.13% of the maximum proposed issuance. This does not include certain costs of issuance for the 2009B bonds (bond counsel, disclosure counsel, etc). Several components of the costs of issuance are higher than would normally be the case because

the planned structure of the 2009A Bonds was modified, experienced delays and represents the City's first public offering in several years.

Of the costs of issuance for the 2009A Bonds, the ordinance before the City Council specifically requests authorization and payment for: Bond Counsel ($180,000 for work on the 2009A Bonds), General Counsel ($16,000 for bond related services provided to the Facilities and Equipment Leasing Corporation – FELC), and Disclosure Counsel ($255,000). The General Counsel fee for FELC will be paid by the Water Department and the General Fund because the work (principally an update of the bylaws) benefits water and non-water financings.

In reviewing the costs for Bond Counsel and Disclosure Counsel with the Office of the City Attorney, the IBA learned that final costs for the 2009A Bonds significantly exceeded previously proposed costs for the 2008A Notes and the 2009A Bonds. In both cases, several explanations were provided to and approved by the Office of the City Attorney over time. These included changes to the original financing plan, a longer than anticipated timeframe to execute the financing; delays in the release of the City's audited financial statements, additional meeting requirements (i.e., DPWG), etc. While the IBA understands the circumstances that led to additional bond and disclosure counsel expense, we recommend that going forward the Office of the City Attorney memorialize competitively selected proposals with executed contracts before work begins, including provisions for unanticipated changes in service. Additionally, we recommend that bond and disclosure counsel expenses be more precisely allocated to specific financings rather than shared between related financings.

CONCLUSION

Based on our review of the documents and discussions with representatives of the City's financing team including the Water Department, the IBA recommends approval of the ordinance facilitating the 2009 Water System Bonds. Final approval for the first phase, the 2009A Bonds, will be granted by adopting a resolution approving the substantially completed drafts of the POS and BPA in conjunction with the second reading of the ordinance at City Council on November 10, 2008.

A further revised POS is targeted for distribution to the City Council by October 31st. This version of the POS will incorporate any feedback from the City Council meeting on October 27th and also include audited data from the FY 07 CAFR in lieu of previous references to unaudited data. Representatives of the City's financing team for the 2009A bonds will be available to discuss the POS at the City Council meetings on October 27th and November 10th.

The financing team should be commended for distributing the substantially complete POS and other bond related documents to the City Council on October 9th, which is more than two weeks before approval of the ordinance is requested and more than four weeks before approval of the POS by resolution is requested. This is in keeping with the Kroll

Report recommendation to provide the City Council with substantially completed drafts of the POS at least two weeks before they are asked to approve it.

The IBA recommends that the City Council review the Disclosure Responsibilities memorandum distributed by the Office of the City Attorney on October 21, 2008. This memorandum references City Disclosure Ordinance and DPWG procedures that have already been completed or will be provided prior to the November 10th Council meeting. Additionally, sample questions and answers have been provided to the City Council to use in reviewing the 2009 Water System Bonds. Finally, a copy of DPWG certifications and a copy a Federal Securities Law Responsibilities memorandum dated July 9, 2008 have been attached to the October 21st memorandum to provide guidance to the City Council in reviewing the disclosure documents.

The IBA has been informed that representatives of the entire financing team will be present for the City Council meeting on October 27, 2008. The IBA encourages the City Council to ask any questions they might have directly to members of the City's financing team including the City's financial advisor, bond counsel, disclosure counsel, feasibility consultant and/or underwriters. The availability of financing consultants to the City Council at or before City Council meetings where approval is sought for debt is a recommendation that was adopted by City Council resolution on December 6, 2006.

[SIGNED]

Jeff Kawar
Fiscal & Policy Analyst

[SIGNED]

Tom Haynes
Fiscal & Policy Analyst

[SIGNED]

APPROVED: Andrea Tevlin
Independent Budget Analyst

DOCKET SUPPORTING INFORMATION
CITY OF SAN DIEGO
EQUAL OPPORTUNITY CONTRACTING PROGRAM EVALUATION

DATE: September 30, 2008

SUBJECT: Water Revenue Bonds, Series 2009B

GENERAL CONTRACT INFORMATION

Recommended Contractor: Fulbright & Jaworski L.L.P.

Amount of this Action: $ 196,000

Recommended Contractor: Hawkins Delafield & Wood L.L.P.

Amount of this Action: $ 255,000

Funding Source: City

Goal: Non-applicable

SUBCONSULTANT PARTICIPATION

There is no subconsultant participation identified at this time.

EQUAL EMPLOYMENT OPPORTUNITY COMPLIANCE

Equal Opportunity Required.

Fulbright & Jaworski L.L.P., submitted a Work Force Report for their Los Angeles employees dated, September 3, 2008 indicating 129 employees in their Administrative Work Force.

The Administrative Work Force indicates under representation in the following categories:

Black in Professional and Administrative
Hispanic in Management & Financial, Professional, and Administrative Support
Asian in Professional
Filipino in Professional and Administrative Support
Female in Professional

EOC Staff is concerned about the under representations in the contractor's workforce and non-participation of certified firms and therefore, has requested an Equal Employment Opportunity Plan and will continue to monitor the firm's effort to implement their plans.

Hawkins Delafield & Wood L.L.P., submitted a Work Force Report for their New York employees dated, September 5, 2008 indicating 148 employees in their Administrative Work Force.

The Administrative Work Force indicates under representation in the following categories:

Hispanic in Professional
Asian in Administrative Support
Filipino in Professional and Administrative Support

This agreement is subject to the City's Equal Opportunity Contracting (San Diego Ordinance No. 18173, Section 22.2701 through 22.2702) and Non-Discrimination in Contracting Ordinance (San Diego Municipal Code Sections 22.3501 through 22.3517)

ADDITIONAL COMMENTS

This action requests authorization to issue the Water Revenue Bonds, Refunding Series 2009A in January 2009 in an amount not to exceed $310 million and 2009B by no later than June 30, 2009 in an amount not to exceed $337 million, by the Public Facilities Financing Authority of the City of San Diego and the execution of related financing documents to refund certain outstanding Water Revenue debt obligations, finance approximately 80% of the approved Water System Capital Improvement Program encumbrances and expenditures, and finance costs of issuance associated with the 2009 Bonds.

Additionally, to authorize the City Attorney to appoint Fulbright & Jaworski L.L.P. as Bond Counsel and Counsel to Facilities and Equipment Leasing Corporation. Also, to authorize the city attorney to appoint Hawkins Delafield & Wood LLP as Disclosure Counsel.

RLL

File. Admin WOFO 2000

Date WOFO Submitted: 9/3/2008

Input by: Lad

Goals reflect statistical labor force availability for the following: 2000 CLFA

Los Angeles County, CA

City of San Diego/Equal Opportunity Contracting

WORK FORCE ANALYSIS REPORT

FOR

Company: *Fulbright & Jaworski L.L.P*

TOTAL WORK FORCE:

	CLFA	Black		CLFA	Hispanic		CLFA	Asian		CLFA	American Indian		CLFA	Filipino		White		Other	
	Goals	M	F	Goals	M	F	Goals	M	F	Goals	M	F	Goals	M	F	M	F	M	F
Mgmt & Financial	7.3%	0	0	18.7%	0	0	14.9%	0	0	0.3%	0	0	14.9%	0	0	1	5	0	0
Professional	8.9%	1	1	16.5%	3	1	12.3%	4	1	0.3%	1	0	12.3%	0	1	46	17	0	1
A&E, Science, Computer	6.0%	0	0	10.5%	0	0	26.1%	0	0	0.2%	0	0	26.1%	0	0	0	0	0	0
Technical	12.2%	0	0	24.7%	0	0	20.8%	0	0	0.3%	0	0	20.8%	0	0	0	0	0	0
Sales	7.3%	0	0	33.7%	0	0	14.6%	0	0	0.3%	0	0	14.6%	0	0	0	0	0	0
Administrative Support	13.1%	0	5	36.0%	1	11	12.8%	0	6	0.3%	0	0	12.8%	0	0	2	17	0	4
Services	9.5%	0	0	54.2%	0	0	11.1%	0	0	0.2%	0	0	11.1%	0	0	0	0	0	0
Crafts	6.1%	0	0	49.1%	0	0	10.5%	0	0	0.3%	0	0	10.5%	0	0	0	0	0	0
Operative Workers	3.2%	0	0	73.3%	0	0	10.2%	0	0	0.1%	0	0	10.2%	0	0	0	0	0	0
Transportation	11.2%	0	0	61.1%	0	0	4.7%	0	0	0.4%	0	0	4.7%	0	0	0	0	0	0
Laborers	7.1%	0	0	69.8%	0	0	4.4%	0	0	0.3%	0	0	4.4%	0	0	0	0	0	0
TOTAL		1	6		4	12		4	7		1	0		0	1	49	39	0	5

HOW TO READ TOTAL WORK FORCE SECTION:

The information blocks in Section 1 (Total Work Force) identify the absolute number of the firm's employees. Each employee is listed in their respective ethnic/gender and employment category. The percentages listed under the heading of "CLFA Goals" are the County Labor Force Availability goals for each employment and ethnic/gender category.

	TOTAL EMPLOYEES			Female Goals
	ALL	M	F	
Mgmt & Financial	6	1	5	40.7%
Professional	77	55	22	53.9%
A&E, Science, Computer	0	0	0	22.3%
Technical	0	0	0	48.9%
Sales	0	0	0	47.5%
Administrative Support	46	3	43	69.6%
Services	0	0	0	60.8%
Crafts	0	0	0	9.2%
Operative Workers	0	0	0	37.7%
Transportation	0	0	0	16.0%
Laborers	0	0	0	11.8%
TOTAL	129	59	70	

HOW TO READ EMPLOYMENT ANALYSIS SECTION:

The percentages listed in the goals column are calculated by multiplying the CLFA goals by the number of employees in that job category. The number in that column represents the percentage of each protected group that should be employed by the firm to meet the CLFA goal. A negative number will be shown in the discrepancy column for each underrepresented goal of at least 1.00 position.

II. EMPLOYMENT ANALYSIS

	Black			Hispanic			Asian			American Indian			Filipino			Female		
	Goals	Actual	Discrepanc	Goals	Actual	Discrepanc	Goals	Actual	Discrepanc	Goals	Actual	Discrepanc	Goals	Actual	Discrepanc	Goals	Actual	Discrepancy
Mgmt & Financial	0.44	0	N/A	1.12	0	(1.12)	0.89	0	N/A	0.02	0	N/A	0.89	0	N/A	2.44	5	2.56
Professional	6.85	2	(4.85)	12.71	4	(8.71)	9.47	5	(4.47)	0.23	1	N/A	9.47	1	(8.47)	41.50	22	(19.50)
A&E, Science, Computer	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Technical	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Sales	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Administrative Support	6.03	5	(1.03)	16.56	12	(4.56)	5.89	6	N/A	0.14	0	N/A	5.89	0	(5.89)	32.02	43	10.98
Services	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Crafts	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Operative Workers	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Transportation	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Laborers	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00

Goals are set by job categories for each protected group. An underrepresentation is indicated by a negative number, but if the DISCREPANCY is less than -1.00 position, a N/A will be displayed to show there is no underrepresentation.

File: Admin WOFO 2000

Date WOFO Submitted: 9/5/2008

Input by: Lad

Goals reflect statistical labor force availability for the following: New York, NY — 2000 CLFA

City of San Diego/Equal Opportunity Contracting

WORK FORCE ANALYSIS REPORT

FOR

Company: *Hawkins Delafield & Wood LLP*

TOTAL WORK FORCE:

	CLFA Goals	Black M	Black F	CLFA Goals	Hispanic M	Hispanic F	CLFA Goals	Asian M	Asian F	CLFA Goals	American Indian M	American Indian F	CLFA Goals	Filipino M	Filipino F	White M	White F	Other M	Other F
Mgmt & Financial	6.1%	0	1	7.9%	0	0	8.1%	1	0	0.1%	0	0	8.1%	0	0	2	3	0	0
Professional	6.6%	5	3	7.4%	2	0	6.5%	4	8	0.1%	0	0	6.5%	0	1	18	21	0	1
A&E, Science, Computer	5.2%	0	0	7.2%	0	0	14.7%	0	0	0.2%	0	0	14.7%	0	0	0	0	0	0
Technical	16.5%	0	0	22.2%	0	0	12.6%	0	0	0.2%	0	0	12.6%	0	0	0	0	0	0
Sales	9.3%	0	0	18.6%	0	0	8.0%	0	0	0.1%	0	0	8.0%	0	0	0	0	0	0
Administrative Support	20.7%	3	13	24.5%	2	17	7.4%	1	3	0.1%	0	0	7.4%	0	0	9	29	0	1
Services	16.6%	0	0	40.4%	0	0	13.8%	0	0	0.2%	0	0	13.8%	0	0	0	0	0	0
Crafts	14.3%	0	0	44.4%	0	0	11.1%	0	0	0.2%	0	0	11.1%	0	0	0	0	0	0
Operative Workers	6.9%	0	0	44.4%	0	0	32.2%	0	0	0.2%	0	0	32.2%	0	0	0	0	0	0
Transportation	23.3%	0	0	55.8%	0	0	8.2%	0	0	0.1%	0	0	8.2%	0	0	0	0	0	0
Laborers	21.2%	0	0	48.2%	0	0	10.0%	0	0	0.3%	0	0	10.0%	0	0	0	0	0	0
TOTAL		8	17		4	17		6	11		0	0		0	1	29	53	0	2

HOW TO READ TOTAL WORK FORCE SECTION:

The information blocks in Section 1 (Total Work Force) identify the absolute number of the firm's employees. Each employee is listed in their respective ethnic/gender and employment category. The percentages listed under the heading of "CLFA Goals" are the County Labor Force availability goals for each employment and ethnic/gender category.

	TOTAL EMPLOYEES ALL	TOTAL EMPLOYEES M	TOTAL EMPLOYEES F	Female Goals
Mgmt & Financial	7	3	4	44.8%
Professional	63	29	34	53.4%
A&E, Science, Computer	0	0	0	31.5%
Technical	0	0	0	50.0%
Sales	0	0	0	45.8%
Administrative Support	78	15	63	66.7%
Services	0	0	0	49.9%
Crafts	0	0	0	18.1%
Operative Workers	0	0	0	55.6%
Transportation	0	0	0	12.9%
Laborers	0	0	0	15.3%
TOTAL	148	47	101	

HOW TO READ EMPLOYMENT ANALYSIS SECTION:

The percentages listed in the goals column are calculated by multiplying the CLFA goals by the number of employees in that job category. The number in that column represents the percentage of each protected group that should be employed by the firm to meet the CLFA goal. A negative number will be shown in the discrepancy column for each underrepresented goal of at least 1.00 position.

I. EMPLOYMENT ANALYSIS

	Black Goals	Black Actual	Black Discrepanc	Hispanic Goals	Hispanic Actual	Hispanic Discrepanc	Asian Goals	Asian Actual	Asian Discrepanc	American Indian Goals	American Indian Actual	American Indian Discrepanc	Filipino Goals	Filipino Actual	Filipino Discrepanc	Female Goals	Female Actual	Female Discrepancy
Mgmt & Financial	0.43	1	N/A	0.55	0	N/A	0.57	1	N/A	0.01	0	N/A	0.57	0	N/A	3.14	4	N/A
Professional	4.16	8	3.84	4.66	2	(2.66)	4.10	12	7.91	0.06	0	N/A	4.10	1	(3.10)	33.64	34	N/A
A&E, Science, Computer	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Technical	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Sales	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Administrative Support	16.15	16	N/A	19.11	19	N/A	5.77	4	(1.77)	0.08	0	N/A	5.77	0	(5.77)	52.03	63	10.97
Services	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Crafts	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Operative Workers	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Transportation	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Laborers	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00

Goals are set by job categories for each protected group. An underrepresentation is indicated by a negative number, but if the DISCREPANCY is less than -1.00 position, a N/A will be displayed to show there is no underrepresentation.

CITY OF SAN DIEGO
MEMORANDUM

DATE: October 9, 2008

TO: Honorable Council President Scott Peters and Members of the City Council

FROM: Mary Lewis, Chief Financial Officer
Lakshmi Kommi, Debt Management Director

SUBJECT: Request for Council Action - Authorization for the 2009 Bonds - Water System (Refunding and New Money) – City Council Docket of October 27/28, 2008

The above referenced Water System financing is being brought to the City Council as a public offering to be issued on a long term basis. The 2009 Bonds will provide the following authorizations: **2009 A Bonds** - (i) repayment of a short term private note issued in January 2007 in the amount of $57M; (ii) economic refunding of all or portions of the 1998 Certificates of Undivided Interest currently outstanding ($245M) provided there is 3% or higher net present value savings when refunded; **2009 B Bonds** - (iii) repayment of a short term private note issued in February, 2008 in the amount of $150M; and (iv) $150 M in new funding for the Water Department capital improvement projects through June, 2010.

Upon the City Council approval of the financing documents for the 2009A and 2009B Bonds, 2009A Bonds will be issued in January 2009. 2009B Bonds are proposed to be issued in April/May 2009, contingent on the City Council's additional approval of the Preliminary Official Statement and the Bond Purchase Agreement specific to 2009B Bonds in the first quarter of 2009. The enclosed packet includes:

- Executive Summary and Financing Staff Report
- Financing Ordinance (2009 Bonds)
- Financing Resolution (2009A Bonds)
- Various financing documents (See below. Also listed in the Financing Staff Report)
- Community reinvestment activity information from Morgan Stanley and JP Morgan Securities (Senior and Co-Senior Manager, respectively, for 2009A Bonds)

The following documents are to be approved via Financing Ordinance on November 10 ***(Introduction of the Ordinance on October 27/28 and approval of the Ordinance is requested for November 10)***:

- Amended and Restated Master Installment Purchase Agreement
- Master Installment Purchase Agreement Supplement 2009A
- Master Installment Purchase Agreement Supplement 2009B
- Indenture 2009A
- First Supplemental Indenture 2009B
- Continuing Disclosure Certificate 2009A

- Continuing Disclosure Certificate 2009B

No action on the Financing Resolution is necessary on October 27/28. Approval of the Resolution is requested for November 10 in conjunction with the authorization of the Financing Ordinance. See above).

The following documents are to be approved via Financing Resolution on November 10:

- Bond Purchase Agreement 2009A
- Preliminary Official Statement 2009A

A Log of Outstanding Items with a schedule of pending data elements is included for all the financing documents.

The City's Disclosure Practices Working Group (DPWG) reviewed and authorized the disclosure documents, including the Preliminary Official Statement, on October 1 and October 2, 2008. In accordance with Municipal Code Section 22.4111 and the DPWG's Controls and Procedures, various certifications pertaining to the Preliminary Official Statement will be distributed by the DPWG to the City Council. The City Attorney's Office will provide a separate memorandum addressing the recommended due diligence process by the City Council.

Debt Management staff will contact the City Council offices and the Independent Budget Analyst to schedule briefings for the proposed docket item.

Mary Lewis
Chief Financial Officer

Lakshmi Kommi
Debt Management Director

cc: Honorable Mayor
Chief Operating Officer
City Attorney
Independent Budget Analyst

000403

CITY OF SAN DIEGO
MAYOR JERRY SANDERS

M E M O R A N D U M

DATE: October 1, 2008

TO: Council President Peters & City Council

FROM: Betty Bailey Rayford, Equal Opportunity Contracting Program Manager

SUBJECT: Water Revenue Bonds, Series 2009 (Refunding and New Money)

This agreement is subject to the City's Equal Opportunity Contracting (San Diego Ordinance No. 18173, Section 22.2701 through 22.2702) and Non-Discrimination in Contracting Ordinance (San Diego Municipal Code Sections 22.3501 through 22.3517)

EQUAL OPPORTUNITY CONTRACTING

Funding Agency:	City of San Diego	
Goals:	15% (MBE/WBE/DBE/DVBE/OBE)	
Subconsultant Participation:	$000,000	Certified Firms (00.0%)
	$000,000	Other Firms (00.0%)
Other:	Workforce Report Submitted- Equal Opportunity Plan required. Staff will monitor plan and adherence to Nondiscrimination Ordinance.	

Fulbright & Jaworski L.L.P is a non-certified firm.
Hawkins, Delafield & Wood is a non-certified firm.

CC: Fischle-Faulk, Debra
Kommi, Lakshmi

000405

THE CITY OF SAN DIEGO

REPORT TO THE CITY COUNCIL

DATE ISSUED: , 2008 REPORT NO. 08-148

ATTENTION: Council President and City Council

SUBJECT: 2009 Bonds - Water System (Refunding and New Money)

REFERENCES: Companion Report - Water System Capital Improvements Program Report

REQUESTED ACTIONS:

1. Authorize the issuance of the Water Revenue Bonds, Refunding Series 2009A in January 2009 in an amount not to exceed $309 million and Series 2009B by no later than June 30, 2009 in an amount not to exceed $329 million, (collectively the "2009 Bonds"), by the Public Facilities Financing Authority of the City of San Diego (the "Authority"). Also authorize the execution of related financing documents to refund certain outstanding Water Revenue Bonds and Notes, finance approximately 80% of the approved Water System Capital Improvement Program encumbrances and expenditures, and finance costs of issuance associated with the 2009 Bonds. The related financing documents are described in detail in Section II.J.i of this report.

2. Authorize the City Attorney to appoint Fulbright & Jaworski L.L.P. as Bond Counsel in connection with the issuance of the 2009A Bonds and pay an amount not to exceed $175,000, plus reasonable out-of-pocket expenses not to exceed $5,000; provided however the fees payable to Bond Counsel shall be contingent upon the closing of the 2009A Bonds and paid out of the proceeds from the 2009A Bonds.

3. Authorize the City Attorney to appoint Fulbright & Jaworski L.L.P. as Counsel to Facilities and Equipment Leasing Corporation, in connection with the issuance of the 2009A Bonds and pay an amount not to exceed $15,000, plus reasonable out-of-pocket expenses not to exceed $1,000; to be paid from funds identified in the Water and Debt Management Departments.

4. Authorize the City Attorney to appoint Hawkins Delafield & Wood LLP as Disclosure Counsel for the City in connection with the issuance of the 2009A Bonds and pay an amount not to exceed $250,000, plus reasonable out-of-pocket expenses not to exceed $5,000; provided however the fees payable to Disclosure Counsel shall be contingent upon the closing of the 2009A Bonds and paid out of the proceeds from the 2009A Bonds.

STAFF RECOMMENDATIONS: Approve the requested actions.

SUMMARY:

I. BACKGROUND

The City entered into a compliance agreement (the "Compliance Order") with the State of California Department of Public Health ("DPH") in 1994 requiring the City to correct operational deficiencies and begin critical capital improvements to its aging infrastructure. The Compliance Order requires the City to rehabilitate or replace deteriorating infrastructure. Failure to adhere to the Compliance Order could result in penalties under the Health and Safety Code, Section 116725.

The City was notified in 1997 that it was not in compliance with the DPH Compliance Order. As a result, the City Council approved the Water Strategic Plan in 1997 which included an eight-year capital improvements plan. In 1998, the City Council approved a series of three 6% increases to the water system revenues to support a $385 million bond issuance (the "1998 Certificates") to fund the first phase of the approved Capital Improvement Program (the "CIP").

On April 30, 2002, the City Council adopted a series of annual 6% water rate increases for FY 2003 through 2007 to generate additional water system revenues and authorized the issuance of the Subordinated Water Revenue Bonds, Series 2002 (the "2002 Bonds") to finance the second phase of the improvements.

The Water Department had anticipated to issue bonds by 2005 but was unable to do so because the City was not current on the financial statements. Proceeds of the 2002 Bonds were fully drawn down by March 2006, leading to a significant slow down of CIP activities for the remainder of FY 2006 and the first half of FY 2007.

In order to continue to address priority capital improvement projects subject to the DPH Compliance Order, the City Council authorized the Authority to issue $57 million Water Revenue Notes (2-year term), Series 2007A ("2007A Notes") on January 16, 2007. The Notes were purchased by Morgan Stanley on January 30, 2007. The proceeds from the 2007A Notes were drawn down by March 2008. Subsequently, the City Council authorized the Authority to issue the 18-month $150 million Subordinated Water Revenue Notes, Series 2008A ("2008A Notes") on February 19, 2008. The Notes were purchased by JP Morgan Securities on February 28, 2008.

The 2007A Notes and the 2008A Notes were short-term private placements. The Notes were structured on a fixed rate interest-only basis with the principal to be paid by refunding the note obligations through long term bond issuances.

On February 26, 2007, the City Council approved a series of four 6.5% annual water rate increases for FY 2008 through 2011. This additional revenue generated from the increased water rates will assist in providing for future debt issuances including the repayment and restructuring of the 2007A and 2008A short term notes into long term debt issuances. The increase in revenue will also support cash funded contributions to CIP projects.

The Water Department has made substantial progress completing the projects set forth in the DPH Compliance Order, which is explained in detail in the Water Department's Companion Staff Report. The Companion Report also describes the overall CIP in greater detail. The proceeds from the 2007A Notes have been fully expended. The proceeds from the 2008A Notes are expected to be expended or encumbered by May 2009.

See Attachment 1 for a summary of the Water System's outstanding debt obligations and the corresponding debt service payments as of September 1, 2008.

II. DISCUSSION

A. Water System Plan of Finance – 2009 Bonds

The proposed financing plan consists of two series of bonds:

- *2009A refunding only financing series* scheduled for January 2009; and
- *2009B refunding and new money financing series* scheduled for April/May 2009.

Taken together the 2009A Bonds and the 2009B Bonds constitute the 2009 Bonds.

2009A Bonds

Proceeds from the 2009A Bonds will be utilized to:

- Refund the $57 million principal of the 2007A Notes due January 30, 2009; and
- Refund eligible maturities of the 1998 Water System Certificates of Undivided Interest that provide at least 3% net present value savings;
- Fund a debt service reserve fund for the 2009A Series; and
- Fund costs of issuance for the 2009A Series

The proposed ordinance provides the authority to refund all outstanding 1998 Certificates that are economical under a current refunding.[1] The exact amount of the 1998 Certificates refunded depends on the market conditions at the time of the sale of the bonds which is planned for January 2009 (see below).

Economic Refunding of the 1998 Certificates

The 1998 Certificates are eligible for a current refunding under their Trust Agreement as of August 1, 2008. The optional prepayment rate for the 1998 Certificates prior to July 31, 2009 is 101% of Par.

Proceeds from the 2009A Refunding Bonds will be used to refund eligible outstanding 1998 Certificates in an amount up to $245 million (outstanding principal as of September 1, 2008). The exact amount of refunding depends on the interest rates available at the time the bonds are

[1] A current refunding is a redemption of outstanding debt in which the refunding bonds are issued less than 90 days before the redemption date of the refunded bonds. An advance refunding is any refunding that is not a current refunding.

priced. Due to major market dislocations, the interest rate environment is currently very volatile. The interest rates would have to drop significantly to allow the City to refund the entire $245 million in outstanding principal. The 1998 Certificates, or selected maturities thereof, will only be refunded if the net present value of the economic savings is at least 3% of the refunding bonds.

For illustration purposes, based on interest rates as of September 11, 2008, refunding approximately $94 million in outstanding 1998 Certificates would have generated debt service savings to the City. The following table provides a financing comparison between the 1998 Certificates and the refunding opportunity available as of September 11, 2008.

	Existing 1998 Certificates	**Refunding Opportunity (Estimate)**
Issuance Size	$94.2 million	$95.7 million
Average Annual Debt Service Payment [1]	$9.24 million	$8.68 million
True Interest Cost	5.06%	4.42%[2]
Maturity Date	8/1/2021	8/1/2021
Total Debt Service	$129.3 million	$121.6 million

[1] Average annual debt service payment toward $94.2 million of the 1998 Certificates adjusted for earnings from cash reserve which offsets actual debt service payment.
[2] Provides 3% Net Present Value Savings

2009B Bonds

Proceeds from the Series 2009B bonds will be used as follows:

- Finance Water CIP construction through June 2010 with an estimated $150 million in new money proceeds;
- Refund the 2008A Notes (principal $150 million);
- Refund any additional outstanding 1998 Certificates if cost effective; and
- Fund costs of issuance for 2009B Series.

The 2009B Bonds will only be issued upon the approval by the City Council of the 2009B Preliminary Official Statement and the 2009B Bond Purchase Agreement which are expected to be brought to the City Council in March/April 2009.

Dividing the 2009 Bonds into two series (2009A and 2009B) enables the City to borrow funds no earlier than the time the proceeds are needed. As previously noted, principal on the 2007A Notes is due on January 30, 2009 while principal on the 2008A Notes is not due until August 2009. In addition, the Water Department currently has remaining proceeds of the 2008A Notes which will be used for capital projects, and does not require new money proceeds until those funds are expended or encumbered (currently expected to be April/May 2009). The Water Department projects that by April/May 2009, the CIP funding from the 2009B Bonds will be necessary to meet the Compliance Order timeline and Federal Safe Drinking Water Act

mandates. Issuing bonds for new construction as close as possible to the start of the construction will allow the City to minimize the potential of negative arbitrage on the construction fund.[2]

B. Method of Sale

The 2009A and 2009B Bonds will be rated and structured as public offerings to be implemented in January 2009 and April/May 2009, respectively. The 2009 Bonds will be fixed rate obligations with a 30-year term for (i) the refunding portion of the 2007 and 2008 Notes; and (ii) the new money portion. The refunding portion of the 1998 Certificates will maintain the original final maturity of August 2028.

As a condition for a public offering, the City will have to become current on the release of the City audited financial statements. The FY 2003 through FY 2006 Comprehensive Annual Financial Reports (CAFRs) were released by the City in FY 2007 and FY 2008 with unqualified audit opinions. The City expects to receive the audit opinion for the FY 2007 financial statements in October 2008.

On May 15, 2008, Standard & Poor's reinstated the City's credit rating. The Water System's outstanding senior lien 1998 Certificates were given a credit rating of AA- underlying rating (stable outlook) and the subordinate lien 2002 Series at A+ (stable outlook). The Standard & Poor's report cited the Water System's good projected financial performance, strong cash reserves, approved rate increases, stable service area economy and customer base as support for the rating. On March 27, 2008 Fitch changed the City's credit outlook to positive. Fitch currently rates the 1998 Certificates at BBB+ and the 2002 Series at BBB, with a positive outlook on both. Moody's currently maintains an A2 rating on the 1998 Certificates and an A3 rating on the 2002 Series, with a negative outlook. The 2009A Bonds are to be issued on parity with the 1998 Certificates as senior lien bonds. The ratings on the proposed bonds are anticipated to receive the same ratings as the 1998 Certificates.

The City will request credit ratings for the 2009A Bonds from the three rating agencies in November 2008. The request process will entail providing the bond documents and offering statement in their final form, making in depth presentations and responding to all the questions from the rating agencies. The Disclosure Practices Working Group will review the ratings materials prepared by staff with assistance from the financial advisor, underwriters, and the disclosure counsel. Ratings on the 2009A Bonds will be offered to the City prior to the release of the Preliminary Official Statement (POS) which is currently anticipated in mid December 2008.

C. Financing Schedule and Key Milestones of the 2009 Bonds

October 2, 2008	DPWG reviewed and approved Preliminary Official Statement (POS) for 2009A Bonds

[2] Proceeds for new construction are held in the construction/acquisition fund for no more than the time needed to complete the construction projects for which the bonds are issued. In most interest rate environments, the rate the City can expect to earn on these funds is less than the expected interest expense on the bonds, resulting in negative arbitrage.

October 27-28, 2008	Introduction of the financing ordinance
November 10, 2008	Approval of the financing ordinance and the resolution authorizing the 2009A Preliminary Official Statement and the Bond Purchase Agreement (30-day referendum begins)
Week of December 1, 2008	Receive credit ratings for 2009A Bonds
December 10, 2008	End of 30-day referendum period

Refunding Series 2009A Bonds

December 11, 2008	Distribute final changes to the POS to the City Council after DPWG approval
December 17, 2008	Print and distribute 2009A Bonds Preliminary Official Statement
January 13, 2009	2009A Bonds pricing
January 14, 2009	Distribute the Official Statement to the City Council after DPWG review
January 19, 2009	Print and distribute 2009A Bonds Official Statement
January 27, 2009	2009A Bonds closing and receipt of proceeds
January 30, 2009	Water Revenue Notes 2007A principal due

Series 2009B Bonds

March/April 2009	City Council to approve the 2009B Preliminary Official Statement and 2009B Bond Purchase Agreement via Council Resolution
March/April 2009	Receive credit ratings for 2009B Bonds
April/May 2009	Print and distribute 2009B Preliminary Official Statement
April/May 2009	2009B Bonds pricing; print and distribute 2009B Official Statement
April/May 2009	2009B Bonds closing and receipt of proceeds. Principal payment on 2008A Notes and fund Water System CIP

D. Summary of Key Terms and Conditions of 2009 A Bonds

- Issuer - The Public Facilities Financing Authority of the City of San Diego
- Underwriting Syndicate - Morgan Stanley & Co., Inc. and J.P. Morgan Securities Inc. (Co-Senior Syndicate Managers); Estrada Hinojosa, Ramirez & Co, Seibert Brandford Shank & Co. (Co-Managers)
- Lien Structure - Senior Lien (1.20x coverage of Net System Revenues to Debt Service)
- Market - Public
- Principal – not to exceed $309 million
- Final Maturity- 2039 (2007A Note Refunding);
  August 2028 (final 1998 Certificates Refunding)
- Debt Service Reserve Fund – Included in the issue size

E. Summary of Key Terms and Conditions of 2009B Bonds

- Issuer - The Public Facilities Financing Authority of the City of San Diego
- Underwriting Syndicate - To be Determined. (See below)
- Lien Structure - To be determined closer to the pricing based on market conditions

- Market - Public
- Principal - Not to exceed $329 million
- Final Maturity - 2039
- Debt Service Reserve Fund – To be determined closer to the pricing based on market conditions.

F. Financing Team

The City's Financing Team for the 2009A Bonds consists of the Chief Financial Officer, staff from the Debt Management Department, the Comptroller's Office, the Water Department, the City Attorney's Office, and outside consultants, including Montague DeRose and Associates LLC as independent Financial Advisor, Fulbright & Jaworski L.L.P. as Bond Counsel, Hawkins Delafield & Wood LLP as Disclosure Counsel, Camp Dresser & McKee Inc. ("CDM") as Feasibility Consultant, and Wells Fargo Bank, National Association as Bond Trustee.

2009A Bonds Financial and Legal Services. Montague DeRose and Associates, LLC (the "Financial Advisor") is serving as the independent financial advisor. The Financial Advisor entered into a three-year contract with the City starting July 24, 2006. Under the agreement (C-13876), the Financial Advisor is authorized to provide financial advisory services, including services related to the proposed 2009A Bonds. Montague DeRose's fee for the 2009A Bonds is at a not-to-exceed $75,000. In addition to the fees, Montague will be reimbursed for all approved out-of-pocket expenses not to exceed $2,500.

The City Attorney's Office has selected Fulbright & Jaworski L.L.P. to serve as bond counsel through a Request for Proposals process. Fulbright & Jaworski L.L.P. has proposed to provide such service for 2009A Bonds for a fee in an amount not to exceed $175,000. Out of pocket expenses are not to exceed $5,000. The bond counsel fee is contingent upon the successful closing of the 2009A Bonds.

Hawkins Delafield & Wood LLP serves as the disclosure counsel. Hawkins Delafield & Wood LLP has proposed to provide such service for a fee in an amount not to exceed $250,000 for 2009A Bonds. Out of pocket expenses are not to exceed $5,000. The disclosure counsel fee is contingent upon the successful closing of the 2009A Bonds.

Camp Dresser & McKee Inc. ("CDM") served as the feasibility engineer. CDM was selected by the Water Department following an interview process of qualified firms on an as-needed list maintained by the Purchasing & Contracting Department. The fee for the feasibility engineer is $156,761. As feasibility engineer, CDM investigated the status of the Water System to analyze its impact on the security of the proposed 2009 Bonds. CDM provided a Feasibility Report, an independent engineering, institutional, operational, and financial analysis of the proposed bond offering. This Feasibility Study is included as an Appendix to the 2009A Bonds Preliminary Official Statement.

Wells Fargo Bank, National Association was selected through a competitive RFP process as the trustee for the 2009 Bonds. Wells Fargo will receive $3,800 in acceptance and first year administration fees for the 2009A Bonds and $1,500 in acceptance and first year fees for the

2009B Bonds. Recurring annual fees will be $1,800 for the 2009A Bonds and $1,000 for the 2009B Bonds.

Costs of Issuance, including consultant expenses, and necessary authorizations for the 2009B Bonds will be brought to the City Council in March/April 2009 in conjunction with the 2009B Bonds Preliminary Official Statement and the Bond Purchase Agreement.

2009A Bonds Underwriting Syndicate. In May 2006, the City solicited proposals from firms qualified to serve as lender, placement agent, purchaser, or underwriter for a planned Water System borrowing. The Request for Proposals (RFP) indicated that although the City planned to undertake the borrowing as a private placement, direct loan or direct purchase, it was possible, subject to timing considerations and the availability of certain financial information, that the financing would be undertaken as a public offering. The City received a total of 21 bids. Respondents were evaluated as possible candidates for both a private offering and a public offering.

In early 2007, four firms (Morgan Stanley, Lehman, Citigroup, and Bank of America) were selected for the non-public offering short list based on proposed spread to MMD[3], disclosure requirements, fees, and flexibility to refinance or call debt. The City undertook the full due diligence process with all the highly rated firms. In December 2007, the City requested bids (based on a spread to MMD) from each of the four highly rated firms. Morgan Stanley was awarded the transaction on a competitive basis after submitting the lowest bid conforming to the City's term sheet. The City and Morgan Stanley completed their due diligence and Morgan Stanley subsequently executed the transaction and purchased the Water Revenue Notes, Series 2007A.

After the 2007A Notes were executed, the focus of the City turned to the issuance of a follow-on public debt offering. In addition to the evaluation of firms for the non-public offering, the City evaluated the respondents on the basis of criteria related to a public offering. The City short-listed five highly qualified firms, based on established criteria, which included staff, firm's experience, understanding the City's borrowing objectives, and fee proposal. Morgan Stanley was selected as the senior manager for a public offering on the basis of this evaluation.

During the development of the financing documents for the anticipated debt issuance, it became clear that the proposed issue could not be sold on a public basis since the City was still not current on its CAFRs. In order to meet priority Water CIP requirements, the City and Morgan Stanley agreed to undertake the transaction as a private offering. As the financing process progressed, the City and Morgan Stanley were unable to reach agreement on the terms of the borrowing during the course of the negotiations for a private offering.

In order to select a replacement underwriter, the City relied on a recently completed selection process for the proposed deferred maintenance bond issuance. The City had conducted a RFP process for the deferred maintenance bonds and ranked the respondents. The highest ranked respondent, Bank of America, was selected for the deferred maintenance bonds. The next highest, JP Morgan, was identified as a replacement for Morgan Stanley for the Water

[3] The Municipal Market Data (MMD) rate is a benchmark index for fixed rate municipal debt

Department's second private issuance. JP Morgan completed a due diligence process and subsequently purchased the 2008A Water Revenue Notes on a private basis.

Morgan Stanley and JP Morgan have been retained as co-senior managers for the 2009A Bonds, having been previously selected for Water Revenue Bond public issuances from the 2006 RFP process. The co-managers, Ramirez & Co., Siebert Branford Shank, and Estrada Hinojosa, were selected on the basis of their responses to the 2006 RFP process to broaden the distribution of bonds to a full range of potential retail and institutional buyers. Morgan Stanley will serve as the book running Representative for the senior managers and co-managers. The Representative signs certain legal documents on behalf of itself, the co-senior manager and the co-managers. Nixon Peabody LLP is serving as the Counsel (Underwriter's Counsel) to Morgan Stanley.

2009B Bonds Underwriting Syndicate. The syndicate will be identified for the 2009B Bonds through a Request for Proposals process to be conducted in the first quarter of 2009. Staff will report the selection at the time the 2009B Bond Purchase Agreement and the 2009B Preliminary Official Statement are brought to the City Council in March/April 2009.

G. Document Preparation Due Diligence

The Financing Team has conformed to the Controls and Procedures established by the Disclosure Practices Working Group (DPWG) in preparing the offering statement for the 2009A Bonds. The Disclosure Practices Working Group reviewed and provided required certifications. Consistent with the Kroll Report recommendations, the financing documents for the proposed 2009 Bonds including the Preliminary Official Statement for 2009A Bonds and related appendices were distributed to the City Council offices two weeks prior to the City Council hearing. [4]

As with the recent financings, staff will inquire with the City Council offices and the Independent Budget Analyst's Office for one-on-one briefings after docketing the proposed financing item and will be prepared to meet with the Council staff and the Independent Budget Analyst to review the financing plan and address questions.

In accordance with the DPWG Controls and Procedures, a Disclosure Working Group was convened to assist the Disclosure Counsel in developing the offering statement. The Disclosure Working Group consisted of the Disclosure Counsel, City Disclosure Counsel, Debt Management staff, Water Department Staff, City Attorney staff, and the Financial Advisor. These Departments have provided pertinent information for inclusion in offering statement. Representatives from the underwriting syndicate's co-senior manager firms have also taken an active role in the disclosure document development process.

The Water Department has been involved in all stages of the disclosure document development process and has reviewed the final form of the Preliminary Official Statement to ensure accuracy and completeness of the disclosures pertaining to the Water System. The Water Department also engaged the engineering firm, Camp Dresser McKee, to complete an engineering and financial feasibility study on the bond offering. The feasibility study is inlcuded in the POS.

[4] Report of the Audit Committee of the City of San Diego, August 8, 2006.

The DPWG met on August 26, 2008, October 1, and October 2, 2008, to review and approve the 2009A Preliminary Official Statement and the 2009A and 2009B Continuing Disclosure Certificates. Consistent with the DPWG Controls and Procedures, necessary certifications from various officials involved in the preparation or review of the disclosures including the Mayor, the City Attorney, and the Chief Financial Officer, will be distributed to the City Council prior to the Council hearing.

H. Legal Structure

The following two entities are utilized for the issuance of the proposed 2009 Bonds:

> The San Diego Facilities and Equipment Leasing Corporation (the "Corporation"), established on February 3, 1986 to acquire and lease to the City real and personal property to be used in the municipal operations of the City, was the issuing entity for the 1998 Certificates. The City is the sole member of the Corporation.
>
> The Public Facilities Financing Authority of the City of San Diego (the "Authority"), was established pursuant to a Joint Exercise of Powers Agreement, dated May 14, 1991, between the City and the Redevelopment Agency of the City. The Authority was established to serve as a financing vehicle for certain of the City's facilities and projects. The Authority served as the issuing entity for the 2002 Water Revenue Bonds, 2007A Water Revenue Notes, and 2008A Water Revenue Notes.

Under the terms of the Master Installment Purchase Agreement (MIPA), the Corporation assists the City in funding the CIP of the Water System. These components are referred to as the Project and are listed in the 2009A Supplement to the MIPA. The City acts as an agent of the Corporation to construct, acquire, and install the Project. The City purchases components of the Project from the Corporation with installment payments from the net system revenues of the Water Department. The installment payments are assigned to the trustee towards debt service payments for the bonds issued by the Authority on behalf of the City.

The Authority and Corporation will each approve via resolution the 2009A and 2009B Assignment Agreements (described in greater detail in Section II.J below), assigning to the Authority the Corporation's right to receive installment payments made by the City, allowing the Authority to serve as the financing vehicle for the 2009A and 2009B Bonds.

I. City Council Approval Process

This staff report describes the overall structure of the 2009 Bonds and the specifics of the 2009A Bonds. Council is being asked to approve all financing documents required for the 2009A Bonds, and certain 2009B Bond documents that must be approved via ordinance. Section J below describes the specifics of each document.

The 2009B Bond Purchase Agreement and the 2009B Preliminary Official Statement will be presented to the City Council in March/April 2009 approximately one month prior to the scheduled issuance of the 2009B Bonds. Routing the documents closer to the issuance of the 2009B Bonds will provide the City with a greater degree of flexibility and understanding of the

bonds to meet the requirements of the Water Department with respect to the financial markets and receiving necessary disclosures. Debt Management will prepare a separate staff report to accompany the 2009B Bond documents submitted in March/April 2009.

J. Financing Documents

A brief description of the financing documents follows:

(i) Documents Pertaining to the 2009A and 2009B Bonds

The **Financing Ordinance** authorizes the issuance of the 2009A Bonds and 2009B Bonds, the approval of the operative legal documents described below and any other actions of the Mayor or his designees that may be necessary to issue the 2009 Bonds.

The **Amended and Restated MIPA** updating and consolidating the 1998 Master Installment Purchase Agreement, dated as of August 1, 1998, as amended by a First Amendatory Supplement, dated as of September 19, 2002, and by the Second Amendatory Supplement, dated as of January 1, 2007, each by and between the City and the Corporation, to make it a single document and to clarify certain of its provisions.

The **2009A Supplement** to the Master Installment Purchase Agreement between the City of San Diego and the San Diego Facilities and Equipment Leasing Corporation documents the sale of certain components of the City's Water System and provides for installment payments by the City to pay the debt service on the 2009A Bonds.

The **2009A Indenture** between the Authority and the Trustee ("Wells Fargo") provides for the issuance of the 2009A Bonds and sets forth terms, including the specific rights, responsibilities, and obligations of each party with respect to the issuance of the 2009 Bonds.

The **2009A Continuing Disclosure Certificate** details the City's ongoing obligation to file annual reports and material event notices with the Nationally Recognized Municipal Securities Information Repositories for the benefit of the 2009A bondholders.

The **2009A Assignment Agreement** between the Authority and the Corporation assigns to the Authority the Corporation's right to receive installment payments made by the City for the 2009A Bonds. The assignment agreement will be entered into between the Authority and the Corporation to allow for the Authority to make debt service payments on behalf of the City on the proposed 2009A Bonds. Previous assignments agreements established between the Authority and Corporation provided for debt service payments on the 2002 Bonds, 2007A Notes and 2008A Notes. The 2009A Assignment Agreement will be approved via resolutions of the Authority and Corporation. The City Council will acknowledge via the financing Ordinance the City's obligation under the Assignment Agreement to send the Installment Payments to the Trustee, on behalf of the Corporation.

The **2009B First Supplemental Indenture** between the Authority and the Trustee provides for the issuance of the Series 2009B Bonds under the terms of the Indenture and the 2009B Bond Purchase Agreement.

The **2009B Supplement** to the Master Installment Purchase Agreement between the City of San Diego and the San Diego Facilities and Equipment Leasing Corporation documents the sale of certain components of the City's Water System and provides for installment payments by the City to pay the debt service on the 2009B Bonds.

The **2009B Continuing Disclosure Certificate** details the City's ongoing obligation to file annual reports and current material event notices with the Nationally Recognized Municipal Securities Information Repositories for the benefit of the 2009B bondholders.

The **2009B Assignment Agreement** between the Authority and the Corporation assigns to the Authority the Corporation's right to receive installment payments made by the City for the 2009B Bonds. The Assignment Agreement will be entered into between the Authority and the Corporation and allow for the Authority to make debt service payments on behalf of the City on the proposed 2009 Bonds. The Assignment Agreement will be approved via resolutions of the Authority and Corporation in April 2009. The City Council will acknowledge via the financing Ordinance the City's obligation under the Assignment Agreement to send the Installment Payments to the Trustee, on behalf of the Corporation.

(ii) Documents Pertaining to the 2009A Bonds

The **Resolution** authorizes the approval of the legal documents described below.

The **2009A Bond Purchase Agreement** between the City, Authority, and underwriters' representative defines the terms and conditions of the 2009A Bonds once they have been priced. The 2009A Bond Purchase Agreement will be approved via resolutions of the City Council and the Authority.

The **Preliminary Official Statement (POS) Water Revenue Bonds, Refunding Series 2009A** is the offering statement for the 2009A Bonds. The POS includes detailed description of the 2009A Bonds, the Water System's financial data and a summary of the pertinent water supply, regulatory, and financial issues. The POS includes the following appendices:

- Demographic information regarding the City of San Diego
- The Engineer's Feasibility Statement
- Information concerning the San Diego County Water Authority and the Metropolitan Water District of Southern California
- Excerpts pertaining to the Water System from the Fiscal Year 2006 and 2007 CAFRs
- Summary of the Principal Legal Documents
- Form of Bond Counsel Opinion
- Form of the Continuing Disclosure Certificate

The preparation and review process for the POS is described in Attachment 2.

III. FISCAL CONSIDERATIONS

Estimated Sources and Uses of Bond Proceeds (Preliminary and Subject to Change)

2009A Bonds

The presentation of the Sources and Uses of Funds below provides the most likely financing scenario under current market conditions. As discussed in Section II.A, the actual size of the economic refunding of outstanding 1998 Certificates will depend on the available interest rates when the 2009A Bonds are priced.

The following estimate assumes none of the 1998 Certificates are economical to refund. Based on the interest rates as of October 2, 2008, the estimated True Interest Cost is 6.00%. Staff will provide updated estimates to the City Council at the time of the Council hearing.

Estimated Sources of Funds	
Par Amount of 2009A Bonds	$ 62.7 million
Premium[1]	$ 0.2 million
TOTAL	$ 62.9 million
Estimated Uses of Funds	
2007A Note Repayment	$ 57.0 million
Deposit to Reserve Fund	$ 4.5 million
Costs of Issuance[2]	$ 1.4 million
TOTAL	$ 62.9 million

[1]The 2009A Bonds are anticipated to be issued as premium bonds. The City will receive an up-front payment (premium) from the bond underwriter in excess of the par value of the bonds. This will allow the bond underwriter to structure the bonds with a competitive coupon rate. In effect, the premium the City receives is offset by a higher coupon paid on the bonds. The bonds are structured in this manner to increase their marketability. It does not increase or decrease the overall borrowing costs to the City. The issue size is reduced by the corresponding amount paid in premium up-front which also allows the City to have a lower issuance size compared to when the bonds are issued on a par basis.

[2]Costs of Issuance include legal fees, consultant costs, underwriting fees, feasibility engineer fees, rating agency fees, and certain other expenses related to the issuance of the bonds. The estimated Costs of Issuance are detailed in Attachment 3.

City Council Authorization Parameters. The legal documents authorize the issuance of the 2009A bonds in an amount not to exceed $309 million. Of this authorization amount, $245 million is to refund all or portions of the 1998 Certificates if economical. The City will only refund portions of the 1998 Certificates which are consistent with the City's Debt Policy and generate at least 3% net present value savings. Any portion of the $245 million from the 2009A Bonds not used to refund the 1998 Certificates will be applied to the not-to-exceed amount authorization under the 2009B Bonds. The financing ordinance also authorizes the repayment of the 2007A Notes ($57 million).

The financing ordinance authorizes documents that are necessary but not sufficient to issue the 2009B Bonds. The 2009B Bonds would still require the approval, via resolution of the City Council and the Authority, of the Bond Purchase Agreement and the Preliminary Official Statement for the 2009B Bonds. The not to exceed amount of the 2009B Bonds is $329 million.

The not to exceed True Interest Cost requested in the financing ordinance for the 2009A and 2009B Bonds is as follows:

2009A Bonds	
2007A Note Refunding	7.00%
1998 Certificates Refunding	4.85%
2009B Bonds	
2008A Note Refunding:	7.00%
New money for capital projects:	7.00%

Debt Management will provide a closing memorandum to the City Council immediately after the sale of the bonds specifying the actual interest rate, proceeds received from the sale of the bonds, actual amount of 1998 Certificates refunded, and the expected lower debt service payment compared to the outstanding 1998 Certificates.

Interest Rate and Projected Debt Service. In accordance with the Council-approved Debt Policy, the 2009A and 2009B Bonds will be priced on a fixed rate basis with the interest rate fixed at the time of the pricing for the life of the bonds. The actual interest rate will be set when the bonds are sold and are based on the market conditions present at the time of the bond pricing. The debt service payments will be paid semi-annually.

Based on interest rates as of October 2, 2008, the portion of the 2009A Bonds used to repay the 2007A Notes is an estimated $62.7 million. The annual estimated debt service is $4.4 million with an estimated total debt service of $132.6 million over a 30 year term. For comparison purposes, at the City Council authorized not-to-exceed interest rate of 7.00%, the annual debt service on the bonds is estimated to be $5.1 million with the total annual debt service at $152 million over a 30 year term.

Assuming the entire outstanding principal on the 1998 Certificates is refunded with the 2009A or 2009B Bonds generating at least 3% in net present value savings, the new annual debt service will be an estimated $12.1 million, FY 2010 - FY 2015, and $25.3 million FY 2016 - FY 2029, which is approximately $800,000 lower per year than the current debt service on the 1998 Certificates. The repayment term on the refunded portion will remain unchanged at 21 years.

Revenue Pledge. Under the terms of the financing documents, the 2009 Bonds are limited obligations of the Authority payable solely from the Installment Payments made by the Water System. The Installment Payments are secured by and payable solely from the Net System Revenue of the Water System. Net System Revenue is the income derived from the operation of the Water System (primarily water rates and charges) less the maintenance and operation costs.

Additional Bonds Test. Section 5.03 of the Amended and Restated Master Installment Purchase Agreement establishes the criteria (Additional Bonds Test) the City must meet to issue additional debt obligations to support the activities of the Water System. Under the criteria, for a

consecutive 12 month period during the preceding 18 months, the Water System's Net System Revenue must be greater that 1.2 times of the new and existing debt service on senior debt obligations, or 1.0 times coverage, of the combined new and existing senior and subordinate debt service. The Additional Bonds Test was performed to ensure that the City is in compliance with the covenant and has the revenue capacity to issue additional bonds in the form of the 2009A and 2009B Bonds for the amounts recommended in the proposed financing plan. The Additional Bonds Test is included as Attachment 4.

ALTERNATIVES

Do not approve the requested actions necessary to issue the 2009 Bonds to repay the 2007A and 2008A Notes and make available additional funds to upgrade and expand the Water System. However, not approving the requested actions essential to repay the two short term notes will adversely affect the City in meeting its repayment covenants and paying off the Water System's outstanding debt obligations in a timely manner. There is no other viable option to pay off the two Notes or extend the term of the Notes other than through the issuance of long term bond obligations. It is recommended that the requested actions be approved to implement a cost effective financing plan in a timely manner in order to address the repayment obligations and meet the ongoing new capital funding needs of the Water System.

COMMUNITY PARTICIPATION AND OUTREACH EFFORTS

The Water Department conducted a Proposition 218 noticing process as part of the approval for the rate increases necessary to support bond issuance projections from FY 2009 to FY 2011. Pursuant to Proposition 218, the City provided property owners 45 days advance notice of the Council's formal consideration of rate increases. Notices were mailed to property owners of record and City of San Diego water bill customers, advising them that the City Council would hold hearings on February 26, 2007 to consider adoption of the proposed water rate increases. The hearings were held as scheduled and the rate increases were subsequently approved by the Council.

KEY STAKEHOLDERS & PROJECTED IMPACTS

Business entities involved in the proposed financing measure are: Morgan Stanley & Co. and J.P. Morgan Securities Inc. (co-senior managers); Estrada Hinojosa, Ramirez & Co, Inc, and Siebert Branford Shank & Co. LLC (co-managers); Hawkins Delafield & Wood LLP (disclosure counsel); Nixon Peabody L.L.P. (underwriters' counsel); Fulbright & Jaworski L.L.P. (bond counsel); Wells Fargo Bank, National Association (trustee); CDM (feasibility consultant), and Montague DeRose and Associates LLC (financial advisor).

Respectfully submitted,

Lakshmi Kommi
Debt Management Director

Mary Lewis
Chief Financial Officer

Attachments

1. Summary of Outstanding Water Utility Obligations
2. Preliminary Official Statement Development Process
3. Estimated Costs of Issuance Budget
4. Additional Bonds Test

Attachment 1

Summary of Outstanding Water Utility Obligations

As of September 1, 2008

	Original Issue Size	Principal Outstanding	Remaining Interest Payments	Total Principal & Interest	Final Maturity
1998 Certificates	$385,000,000	$245,010,000	$176,357,848	$421,367,848	FY 2029 (08/01/2028)
2002 Bonds	$286,945,000	$272,845,000	$157,918,258	$430,763,258	FY 2033 (08/01/2032)
2007A Notes	$57,000,000	$57,000,000	$1,150,672	$58,150,672	FY2009 (01/30/2009)
2008A Notes	$150,000,000	$150,000,000	$5,289,000	$155,289,000	FY 2010 (08/28/2009)
State Revolving Fund Loan (2004)	$21,525,249	$18,940,380	$4,450,295	$23,390,675	FY 2026 (7/01/2025)

Source: Debt Management

Attachment 2

2009A Preliminary Official Statement Development Process

The following describes the preparation and review process undertaken for the 2009A Preliminary Official Statement (2009A POS), the marketing document for the 2009A Bonds. The final draft of the 2009A POS is one of the financing documents for the 2009A Bonds and is referenced in the Staff Report.

Three groups were engaged in the POS preparation and review process:

- **The Financing Team** (as defined in the Staff Report) reviewed and provided input to the POS along with other legal documents as part of the effort to execute the 2009A Bonds.
- **The Disclosure Working Group** consisting of the Disclosure Counsel, City Disclosure Counsel, Financial Advisor, City Attorney's Office, Debt Management, and Water Department, was formed with the principal purpose to develop the POS.
- **The Disclosure Practices Working Group (DPWG)** reviewed and approved the POS including the appendices to the POS. Membership in the DPWG is defined by Section 22.4103 of the Municipal Code. The DPWG consists of the Chief Operating Officer, the City Attorney, the Chief Financial Officer, the Director of Debt Management, the Chief Deputy City Attorney for Disclosure, the Independent Budget Analyst, the Internal Auditor, and the outside Disclosure Counsel, currently John McNally of the Washington D.C. office of Hawkins Delafield & Wood LLP. The independent monitor participates in the DPWG meetings. The position of Chief Deputy City Attorney for Disclosure and Finance has been vacant since May 2008.

The 2009A POS was drafted by the Disclosure Counsel for the 2009A Bonds, from the Los Angeles office of Hawkins Delafield & Wood LLP, relying on the information provided by the City departments and their assessment of the legal, financial, and the Southern California supply issues specific to the City's Water System.

The Disclosure Working Group began work on a Preliminary Official Statement for a planned 2008 public debt issuance in September 2007. The Disclosure Working Group met in early October 2007 to review the methodology and approach to producing an Official Statement. The group reviewed selected Official Statements from Southern California agencies that recently issued water revenue bonds in order to develop an understanding of the current disclosure expectations for a water credit. Water Department and Debt Management staff began to update data elements for the POS and provided the information to the Disclosure Counsel and responded to inquiries as the document was developed by the Disclosure Counsel. The Group reviewed and refined the document over the course of first half of 2008.

Starting July 2008, the Financing Team for the 2009A Bonds reviewed POS drafts and provided comments to the Disclosure Counsel during various legal document review sessions conducted on July 2, July 17, July 30, 2008, September 11, and September 25.

In August, 2008, the POS primary document was received by the DPWG. A final draft of the POS, incorporating as appendices, the Feasibility Report, Southern California water

supply information, regional demographic data, and excerpts pertaining to the Water System from the 2006 CAFR, were reviewed and approved by the DPWG on October 1 and 2, 2008, respectively.

On an ongoing basis, staff from the City Attorney's Office, Water Department, Debt Management Department, Comptroller, and the CFO, receive training on disclosure best practices provided by the City Disclosure Counsel, and the California Debt and Investment Advisory Commission.

Attachment 3

Estimated Costs of Issuance

Water Revenue Bonds 2009A

Role	Firm		
Financial Advisor	Montague DeRose and Associates, LLC	$	77,500
Bond Counsel	Fulbright & Jaworski L.L.P.		180,000
Disclosure Counsel	Hawkins Delafield & Wood LLP		255,000
External Auditor, FY 07 and 08	Macias Gini & O'Connell LLP		12,000
Feasibility Engineer	Camp Dresser McKee		156,800
Credit Rating Fees			210,000
Trustee	Wells Fargo		3,800
Printing Costs			30,000
Underwriter Discount[1]	2009A Syndicate		404,000
Contingency	3%		27,800
Total Estimated Costs of Issuance		$	1,356,900

[1]Based on market conditions. Includes takedown, underwriter's counsel fees and out-of-pocket expenses.

Attachment 4

Water System
Historical Additional Bonds Test
FY 2008

($000s)

Operating Receipts	
Water Sales (a)	288,949
Other Services	9,564
Rentals	5,695
Other Revenue	2,992
Total Operating Receipts	307,200
Operating Expenditures	
Water Purchases	128,114
Operations & Maintenance	135,225
Total Operating Expenditures	263,339
Operating Income	43,862
Other Income	
Interest Earnings	18,252
Capacity Charges	8,459
Other Income (b)	2,746
Total Other Income	29,456
Net Income	73,318
Less: Reserve Earnings on Parity Obligations	1,370
Adjusted Net System Revenue	71,948
Maximum Annual Debt Service on all Parity Obligations	54,627
Test (c)	1.32

(a) Includes service charges and reclaimed water sales
(b) Includes cancelled prior year encumbrances, recovered damages, and land sales
(c) Ratio of Net System Revenue to Parity Obligations >= 1.20

Source: Report on the Engineering and Financial Feasibility Study – Revenue Bonds Series 2009, Table 5-1.

000429

THE CITY OF SAN DIEGO

REPORT TO THE CITY COUNCIL

DATE ISSUED: REPORT NO. 08-147

ATTENTION: Council President and City Council, Docket of

SUBJECT: Water System Capital Improvements Program Report

REFERENCE: Companion Report – Fiscal Year 2009 Water System Public Offering

REQUESTED ACTION: Accept this report.

STAFF RECOMMENDATION: Accept this report.

SUMMARY:
Proceeds from the sale of an estimated $329,000,000 of Public Facilities Financing Authority of the City of San Diego Water Revenue Bonds, Series 2009B (the "2009B Bonds") will be needed in order to refund $150 million in outstanding 2008A Notes (as defined in the Fiscal Year 2009 Water System Public Offering Report), fund necessary reserves and expenses related to the 2009B Bonds financing, and fund the continuation of improvements to the Water System initiated under financing programs in previous years. Details of the proposed financing plan are discussed in the Fiscal Year 2009 Water System Public Offering Report.

BACKGROUND:
In mid-2006, the Water Department entered into an agreement with Raftelis Financial Consultants, Inc., a financial services consulting firm, to complete a Water Cost of Service Rate Study (the "Study"). The Study was to review the then-current water rate structure, the projected expenditures, including the proposed capital improvements and corresponding anticipated debt issuances, and the anticipated revenue requirements for the period of fiscal year 2008 through fiscal year 2011.

The completed study, presented in December 2006, recommended modifications to user classifications, cost allocations, and increases to water rates over the specific study period of fiscal year 2008 through fiscal year 2011. The additional anticipated revenue generated from the increased water rates was anticipated to support the Water System including addressing debt service from planned future bond issuances, cash funding contributions to capital improvement projects, and allowing sufficient reserves to be established.

In January 2007, the Water Department issued $57 million in privately placed notes (the 2007A Notes, as defined in the Fiscal Year 2009 Water System Public Offering Report), in order to fund the continuation of the capital improvement projects. Based on the construction schedules for the

Water Department's capital improvement projects, the Water Department intended to undertake a public bond offering in 2005, however, due to the City's lack of audited financial statements, the City was unable to access the public bond market. As a result, the Water Department was resigned to significantly restructuring construction schedules and delaying projects. By Spring 2006, the bond proceeds from the 2002 Bonds (as defined in the Fiscal Year 2009 Water System Public Offering Report) had been fully expended. The Water Department used pay-as-you-go funding to continue the reduced capital program. The issuance of the 2007A Notes was intended to fund the capital improvement program until a public bond offering was possible, anticipated to be in early 2008. The debt service associated with the 2007A was to be addressed from the water rate increases approved in 2002. The 2007A Notes provided funding for capital projects including water main replacements, the Alvarado Water Treatment Plant, the Miramar Water Treatment Plant, the Otay Water Treatment Plant, and the Rancho Bernardo Reservoir.

On February 26, 2007, the City Council was presented with a proposal to increase water rates by six and a half percent annually from fiscal year 2008 through fiscal year 2011 in order to support the Water System, specifically addressing the continuation of the multi-year capital improvement program to meet regulatory requirements and upgrade the water infrastructure. From fiscal year 2008 through fiscal year 2011, it was anticipated that approximately $585 million in capital improvement projects would be undertaken by the Water Department. The funding for the proposed capital program was to be supported by two public bond offerings (the first to be in early fiscal year 2008), with the corresponding debt service to be addressed by the additional revenue generated from the proposed water rate increases. A large majority of the proposed capital improvement projects, approximately 82%, were either identified or were directly related to projects identified in a Compliance Order from the State of California Department of Public Health (formerly the Department of Health Services). The Compliance Order, stemming from a compliance agreement between the City of San Diego and the State of California Department of Public Health (DPH) entered into in 1994, identified a list of projects the City must complete to correct operational deficiencies, stated the need to begin needed capital improvements, and required the development of a corresponding funding plan for these identified capital improvements.

Upon review of the Study and assuring the compliance with proper noticing requirements, the City Council approved the proposed series of four consecutive annual six and a half percent increases to water rates. The first approved water rate increase went into effect on July 1, 2007.

As the City still lacked audited financial statements, the bond issuance anticipated in early fiscal year 2008 was delayed until February 2008. On February 19, 2008, the City Council approved actions leading to the issuance of $150 million of privately placed notes (the 2008A Notes). The proceeds from the 2008A Notes are being used for a variety of capital improvements to the City's Water System to: continue compliance with the DPH Compliance Order – Amendment 11, meet Environmental Protection Agency (EPA) requirements for enhanced drinking water treatment systems, improve the reliability of the water system, repair or replace aged infrastructure, and increase the capacity of the system. The most recent quarterly update report to the DPH is attached (Attachment 1). Based upon construction cost estimates and construction schedules, the 2008A Notes proceeds are anticipated to be exhausted by May 2009. Project expenses after May 2009 will need to be funded entirely with cash if additional debt financing is not available. Affected projects would include the completion of enhancements to the Alvarado Water

Treatment Plant, Otay Water Treatment Plant, Miramar Treatment Plant, Water Main Replacements, and various other improvements to the water system.

DISCUSSION:

Prior to FY 2009, the City was not able to access the public bond market due to a suspended credit rating and lack of current audited financial statements. However, as the City has worked diligently on becoming current with their audited financial statements, the City released audited financial statements through Fiscal Year 2007 and had their credit ratings reinstated. As such, in early 2009, the City anticipates re-entering the public bond market with the Public Facilities Financing Authority of the City of San Diego Water Revenue Bonds, Refunding Series 2009A (the "Series 2009A Bonds"). The Series 2009A Bonds will refund the $57 million in outstanding privately placed short-term notes (the 2007A Notes) which were issued as the City endeavored to continue the Water Capital Improvement Program while the City was unable to access the public bond market.

As previously mentioned, in February 2008, the City issued the 2008A Notes to continue the Water Capital Improvement Program. Based on construction cost estimates and construction schedules, it is projected that by June 2009, the Water Department will reach a point where it will be unable to continue ongoing projects or unable to initiate new projects without additional financing proceeds being available. At that point, the Water Department will be in jeopardy of falling out of compliance with the DPH Compliance Order. Therefore, the Water Department is requesting the proposed public financing in an estimated amount of $329 million to: (1) refund the $150 million in outstanding 2008A, (2) fund the required debt service reserve fund and pay cost of issuance expenses associated with the 2009B Bonds, and (3) fund $150 million in anticipated Water System Capital Improvements Program needs through June 2010.

The anticipated projects, the project types, and the justification for inclusion to the list of capital improvement projects anticipated to receive proceeds from the 2009B Bonds are listed in Attachment 2. From the listed projects in Attachment 2, 16 projects, encompassing approximately 86% of the anticipated proceeds or approximately $129 million, are either required by or related to the DPH Compliance Order.

In order to continue the improvements to the Water System required by the DPH Compliance Order and to address the capital improvements which supported the justification for the water rate increases approved in 2007, additional debt financing is required. The Water Department estimates that Water Department capital improvement expenditures for FY 2009 through FY 2011 will total approximately $489 million. Financing for this program is expected to come from usage of the proceeds from the 2008A Notes, the proposed 2009B Bonds, and a subsequent long term bond issue in FY 2011. The approved four consecutive annual water rate increases, from FY 2008 through FY 2011, already reflect the anticipated debt service that will be associated with these bond issuances.

Engineering and Financial Feasibility Study

In anticipation of the 2009A Bonds, the Water Department contracted with Camp, Dresser & McKee (CDM), an engineering consultant firm, to conduct an Engineering and Financial Feasibility Report (Attachment 3). The purpose of this report is for an independent review of the feasibility of the planned bond issuances. CDM conducted a review and evaluation of the Water

Department's capital improvement program, an institutional analysis, a review and evaluation of the operation and maintenance policies and programs, and a detailed review of the projected revenues and expenses of the Water Department for fiscal years 2008 through 2013. Based on their findings, CDM concluded that based on the financial projections presented in their report, the Water Department would be able to adequately finance the five-year CIP, meet all cash requirements of the Water System, and comply with all debt service coverage requirements during the study period.

FISCAL CONSIDERATIONS:
Debt service for the 2009B Bonds is estimated at approximately $25.7 million per year which will be paid from the previously approved four consecutive annual water rate increases that went into effect on July 1, 2007.

PREVIOUS COUNCIL and/or COMMITTEE ACTION:
None.

COMMUNITY PARTICIPATION AND PUBLIC OUTREACH EFFORTS:
None.

KEY STAKEHOLDERS AND PROJECTED IMPACTS: Residents of San Diego will see continued improvements to that the Water System and on-going compliance with the State Department of Public Health Compliance Order.

10/6/08

J. M. Barrett
Director of Public Utilities

Attachments: (1) DPH Quarterly Status Report, dated August 18, 2008
(2) Projects to be funded with proceeds from 2009B Bonds
(3) Report on the Engineering and Financial Feasibility Study – Revenue Bonds Series 2009

000433

ATTACHMENT 1

THE CITY OF SAN DIEGO

August 18, 2008

Mr. Sean Sterchi, P.E.
District Engineer
California Department of Public Health
1350 Front Street, Room 2050
San Diego, CA 92101

Dear Mr. Sterchi:

Subject: California Department of Public Health Status Report
for the Period Ending June 30, 2008

The Water Department's Quarterly Status Report pertaining to the California Department of Public Health (CDPH) Compliance Order is enclosed.

We are pleased to report that our Capital Improvement Program has made significant progress to meet the requirements of the Compliance Order issued by CDPH. In this quarter, we have completed the following items:

No. 85 for Rancho Peñasquitos - The City shall begin construction of the Rancho Peñasquitos (formerly Rancho Bernardo) Pump Station by January 31, 2008 **(Completed)**.

No. 88 for Miramar WTP Contract A - The City shall complete construction of the Miramar Water Treatment Plant Contract A (consisting of construction of Pre-Treatment Facilities, Filtration Facilities, Chemical Facilities, Ozone Contactors, and Administration Building and demolition of Flocculation and Sedimentation Basin No. 4) by June 30, 2008 **(Completed)**.

No. 91 for Miramar WTP Contract C - The City shall start construction of the Miramar Water Treatment Plant Contract C (consisting of Ozone equipment) by June 30, 2008 **(Completed)**.

No. 93 for Otay 2nd Pipeline - The City shall begin construction of the Otay 2nd Pipeline, along 54th Street, between El Cajon Boulevard and Redwood Street, by March 31, 2008 **(Completed)**.

No. 95 for Alvarado WTP - The City shall start construction of the Alvarado Water Treatment Plant ozone equipment by June 30, 2008 **(Completed)**.

In addition, the City has awarded contracts for construction of approximately 21.86 miles of cast pipe replacement which met the CDPH annual goal of at least 10 miles of water main replacement per fiscal year (No. 73).

DIVERSITY

Water Department Director
600 B Street, Suite 400 • San Diego, CA 92101
(619) 533-7555 (Tel) • (619) 533-7593 (Fax)

000434

If we can be of further assistance, please call Hoorman Partow at (619) 533-7570.

Sincerely,

(ASST. DIR., FOR)

J. M. Barrett
Director of Public Utilities

HP/vth

Enclosure: DPH Quarterly Report

000435

bcc: Alex Ruiz, Assistant Director
Marsi Steirer, Deputy Director
Mike Bresnahan, Deputy Director
Hooman Partow, Program Manager
Jennifer Casamassima, Program Manager
Dana Chapin, Water Production Superintendent
Amy Dorman, Senior Engineer-Civil
Vien Hong, Associate Engineer-Civil
RMS D 21.8

City of San Diego
Water Department
Capital Improvements Program

Status Report as of June 30, 2008
Department of Public Health Sanitary Survey

Department of Public Health Compliance Agreement, No. 04-14-96-22 (Amendment No. 11)

Department of Public Health: Compliance Item No. 01	
DPH Mandate:	The City shall submit a plan to provide funding to complete the items in this compliance order by April 30, 1997.
Scope of Work:	Submit funding plan.
Current Status:	Completed.

Department of Public Health: Compliance Item No. 02	
DPH Mandate:	The plan to provide funding to complete the items in this compliance shall be approved by the City Council by August 12, 1997.
Scope of Work:	Submit funding plan.
Current Status:	Completed.

Department of Public Health: Compliance Item No. 03	
DPH Mandate:	**At least quarterly, the City shall submit a progress report on the status of each item in the compliance order. A meeting with the Department may be substituted for a progress report.**
Scope of Work:	**Submit quarterly reports.**
Current Status:	**On schedule.**

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 04	
DPH Mandate:	**The City shall complete rehabilitation of the Redwood Village reservoir by April 30, 1997.**
Scope of Work:	**Upgrade the Redwood Village Standpipe, facility upgrade including seismic retrofit and general improvement of the facility piping.**
Current Status:	**Completed.**

Department of Public Health: Compliance Item No. 05	
DPH Mandate:	**The City shall complete demolition of the Paradise Hills Standpipe by October 10, 1997.**
Scope of Work:	**Demolish the Paradise Hills Standpipe.**
Current Status:	**Completed.**

Department of Public Health: Compliance Item No. 06	
DPH Mandate:	**The City shall submit the plan for the Otay Water Treatment Plant Clearwell (formerly South San Diego Reservoir No. 2) by October 24, 2002.**
Scope of Work:	**Send DPH plans for construction of the clearwell reservoirs adjacent to the Otay Water Treatment Plant.**
Current Status:	**Completed.**

Legend: **Completed** | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 06a, 06b, & 06c		
DPH Mandate:	Item 06a:	The City shall submit plans for the Otay Water Treatment Plant Clearwell (formerly South San Diego Reservoir No. 2) by May 16, 2001.
	Item 06b:	The City shall begin construction for the Otay Water Treatment Plant Clearwell (formerly South San Diego Reservoir No. 2) by April 30, 2003.
	Item 06c:	The City shall end construction for the Otay Water Treatment Plant Clearwell (formerly South San Diego Reservoir No. 2) by April 1, 2005.
Scope of Work:	Construct new clearwell reservoirs at the Otay Water Treatment Plant.	
Current Status:	Item 06a:	Completed.
	Item 06b:	Completed.
	Item 06c:	Completed.

Department of Public Health: Compliance Item No. 07, 10, & 13		
DPH Mandate:	Item 07:	The City shall submit the design drawings for rehabilitation of the Point Loma Concrete Reservoir by April 26, 1999.
	Item 10:	The City shall begin rehabilitation of the Point Loma Concrete Reservoir by September 27, 1999.
	Item 13:	The City shall complete rehabilitation of the Point Loma Concrete Reservoir by May 16, 2000.
Scope of Work:	Remove and replace the wood roof, install a Hypalon type lining, provide site improvements, and install a concrete Shear Wall in reservoir to support roof.	
Current Status:	Item 07:	Completed.
	Item 10:	Completed.
	Item 13:	Completed.

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 08, 12 & 14		
DPH Mandate:	**Item 08:**	**The City shall submit the drawings for rehabilitation work on the Rancho Bernardo Concrete Reservoir by June 30, 2006**
	Item 12:	**The City shall begin rehabilitation of the Rancho Bernardo Concrete Reservoir by July 31, 2007.**
	Item 14:	**The City shall complete construction of the Rancho Bernardo Concrete Reservoir by December 31, 2008.**
Scope of Work:	**Removal of damaged coating from most concrete surfaces, repair spalled concrete, demolish and replace the reservoir roof, remove the existing liner from floor and walls and replace with 86,000 square feet of Hypalon liner and geotech material.**	
Current Status:	**Item 08:**	**Completed.**
	Item 12:	**Completed.**
	Item 14:	**On Schedule.**

Department of Public Health: Compliance Item No. 08a, 08b & 08c		
DPH Mandate:	Item 08a:	The City shall submit plans for the Black Mountain Reservoir by May 1, 2000.
	Item 08b:	The City shall begin construction of the Black Mountain Reservoir by September 1, 2000.
	Item 08c:	The City shall end construction of the Black Mountain Reservoir by December 31, 2001.
Scope of Work:	Construct a 25 million gallon reservoir near the City's No. 10 water connection to the County Water Authority's Second Aqueduct, immediately west of Rancho Penasquitos. This project will be constructed by a developer through a participation agreement funding by the City.	
Current Status:	Item 08a:	Completed.
	Item 08b:	Completed.
	Item 08c:	Completed.

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 09, 11 & 18		
DPH Mandate:	Item 09:	The City shall submit the drawings for construction of the new replacement Bayview Reservoir by February 1, 2000.
	Item 11:	The City shall begin construction of the new replacement Bayview Reservoir by October 2, 2000.
	Item 18:	The City shall complete construction of the replacement Bayview Reservoir by April 30, 2002.
Scope of Work:	Replace existing 10-million gallon, partially buried concrete reservoir with a new reservoir with the same capacity at the same site.	
Current Status:	Item 09:	Completed.
	Item 11:	Completed.
	Item 18:	Completed.

Department of Public Health: Compliance Item No. 15, 20 & 22		
DPH Mandate:	Item 15:	The City shall submit the upgrading of the Penasquitos Reservoir drawings for the structural work by May 4, 2001.
	Item 20:	The City shall begin construction on the Penasquitos Reservoir structural work by November 30, 2001.
	Item 22:	The City shall complete construction of the new replacement Penasquitos Reservoir by December 28, 2002.
Scope of Work:	Major repairs to existing reservoir appurtenances, an investigation of the physical condition of pre-stressed wire and install flexible pipe connections at base of tank wall for seismic resistance.	
Current Status:	Item 15:	Completed.
	Item 20:	Completed.
	Item 22:	Completed.

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 16, 19 & 24		
DPH Mandate:	**Item 16:**	**The City shall submit the drawings for the San Carlos Reservoir structural work by October 2, 2000.**
	Item 19:	**The City shall begin construction on the San Carlos Reservoir by May 1, 2001.**
	Item 24:	**The City shall complete construction on the San Carlos Reservoir structural work by November 1, 2002.**
Scope of Work:	**Remove existing interior coating and recoat; debris removal; seismic retrofit wall to footing linkage; repair loose concrete; upgrade access; paving, lighting, etc.; inspect/repair post tensioning and pre-stressing wire; and replace submerged metallic structures.**	
Current Status:	**Item 16:**	**Completed.**
	Item 19:	**Completed.**
	Item 24:	**Completed.**

Department of Public Health: Compliance Item No. 17, 21 & 23		
DPH Mandate:	**Item 17:**	**The City shall submit the drawings for the construction of the new replacement Soledad Reservoir by February 1, 1999.**
	Item 21:	**The City shall begin construction of the new replacement Soledad Reservoir by September 1, 1999.**
	Item 23:	**The City shall complete construction of the Soledad Reservoir by September 1, 2000.**
Scope of Work:	**This reservoir will be rehabilitated by lining with steel plates. DPH does not have to review designs.**	
Current Status:	**Item 17:**	**Completed.**
	Item 21:	**Completed.**
	Item 23:	**Completed.**

Legend: **Completed** | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, & 36		
DPH Mandate:	Item 25:	The City shall submit the revised plan to break up the construction of the Alvarado Water Treatment Plant into different phases.
	Item 26:	Begin construction of the Earl Thomas Reservoir by February 1, 2003.
	Item 27:	The City shall begin construction of the College Ranch Pump Plant by November 30, 2001.
	Item 28:	The City shall begin construction of the Operations Building by November 30, 2001.
	Item 29:	End construction of the Earl Thomas Reservoir by July 1, 2005.
	Item 30:	The City shall begin construction of the Alvarado Water Treatment Plant Filters by November 30, 1998.
	Item 31:	The City shall complete construction of the College Ranch Pump Plant by December 1, 2003.
	Item 32:	The City shall complete construction of the Operations Building by December 1, 2003. (Deleted).
	Item 33:	The City shall open bids for construction of the New Basins by December 1, 2003.
	Item 34:	The City shall begin construction of the New Basins by April 1, 2004.
	Item 35:	The City shall complete construction of the Filters by November 30, 2001.
	Item 36:	The City shall complete construction of the New Basins by December 1, 2006.
Scope of Work:	Increasing the initial phase of the expansion program will increase the capacity from 120 mgd to 150 mgd to meet the projected water demand through 2015. The plant will also be upgraded to meet the Safe Drinking Water Act standards and rehabilitated facilities.	
Current Status:	Item 25:	Completed.
	Item 26:	Completed.
	Item 27:	Completed.
	Item 28:	Deleted (Amendment No. 6).
	Item 29:	Completed.
	Item 30:	Completed.
	Item 31:	Completed.
	Item 32:	Deleted (Amendment No. 6).
	Item 33:	Completed.
	Item 34:	Completed.
	Item 35:	Completed.
	Item 36:	Completed.

Legend: Completed | Open Status | Since Last Report

Department of Public Health : Compliance Item No. 37

DPH Mandate:	**The City shall do everything within its power to optimize treatment at all of the City's water treatment plants, in order to produce an effluent turbidity goal of 0.1 NTU in 95% of the sample required every four hours, determined on a monthly basis.**
Scope of Work:	**Improve operation of water treatment plants.**
Current Status:	**During the second quarter of calendar year 2008, the Alvarado and Otay treatment plants met the goal of 0.1 NTU in 95% of the samples required every four hours. This was accomplished by optimization of plant treatment processes.** **The Miramar WTP effluent turbidity met the goal of 0.1 NTU in 95% samples required every four hours for the month of April and May. For the month of June, 95% effluent turbidity samples were below 0.15 NTU because the caustic soda application point was switched to the clearwell inlet structure. The turbidities were then reduced by reverting the application point back to pre-filters. In addition, WTP higher settled water turbidities were resolved by increasing coagulants (ferric and cationic polymer). Miramar WPT was then able to maintain a 0.1 NTU.**

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 38

DPH Mandate:	Due to the size of the (water treatment) plants, their age, and the commitment to optimizing treatment to meet an effluent turbidity goal of 0.1 NTU, all operators with 24 hours per day responsibility are required to have a minimum Grade 5 certificate. Specifically a minimum of two operators with a Grade 5 Water Treatment Operator certification shall be assigned to work full-time at each water treatment plant. In addition, the superintendent supervising the three water treatment plants shall possess a Grade 5 Water Treatment Operator certification. This shall be implemented by the following schedule:	
	Item A:	By April 15, 1999, the City shall submit an interim and draft long term plan and time schedule for Compliance.
	Item B:	By July 1, 1999, the City shall submit a final long term plan and time schedule for Compliance.
Scope of Work:	Have WTP operators attain Grade 5 WTP Operator Certificates.	
Current Status:	Item A:	Completed.
	Item B:	Completed.

Department of Public Health: Compliance Item No. 39, 41 & 45

DPH Mandate:	Item 39:	The City shall submit the construction drawings for the Bayview Pump Plant by October 15, 1998.
	Item 41:	The City shall begin construction of the Bayview Pump Plant by December 1, 1998.
	Item 45:	The City shall complete construction of the Bayview Pump Plant by July 1, 1999.
Scope of Work:	Construct a new pump plant at the Bayview Reservoir and install pipe to serve as a reservoir by-pass line.	
Current Status:	Item 39:	Completed.
	Item 41:	Completed.
	Item 45:	Completed.

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 40, 43 & 49		
DPH Mandate:	Item 40:	The City shall submit the construction drawings for Deerfield Pump Plant by June 1, 1999.
	Item 43:	The City shall begin construction of the Deerfield Pump Plant by December 1, 1999.
	Item 49:	The City shall complete construction of the Deerfield Pump Plant by December 29, 2000.
Scope of Work:	Replace the existing underground Hillandale Pump Plant with a new water pump plant located on Mission Gorge Road across from Deerfield Street. The work also includes demolition of the existing Hillandale Water Pump Plant.	
Current Status:	Item 40:	Completed.
	Item 43:	Completed.
	Item 49:	Completed.

Department of Public Health: Compliance Item No. 42, 44 & 48		
DPH Mandate:	Item 42:	The City shall submit the drawings for the Del Cerro Highlands Pump Plant (formerly San Carlos PP) by July 31, 1998.
	Item 44:	The City shall begin construction of the Del Cerro Highlands Pump Plant by December 15, 1998.
	Item 48:	The City shall complete construction of the Del Cerro Highlands Pump Plant by December 15, 1999.
Scope of Work:	Expand existing buried pump station and increase the pump capacity.	
Current Status:	Item 42:	Completed.
	Item 44:	Completed.
	Item 48:	Completed.

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 46, 47 & 50		
DPH Mandate:	Item 46:	The City shall submit the drawings for construction of the 65th & Herrick Pump Plant by December 31, 1998.
	Item 47:	The City shall begin construction of the 65th & Herrick Pump Plant by July 2, 1999.
	Item 50:	The City shall complete construction of the 65th & Herrick Pump Plant by May 30, 2001.
Scope of Work:	Construct a new pump plant.	
Current Status:	Item 46:	Completed.
	Item 47:	Completed.
	Item 50:	Completed.

Department of Public Health: Compliance Item No. 51, 53 & 56		
DPH Mandate:	Item 51:	The City shall submit the drawings for construction of the Waring Road Pump Plant (formerly the Adobe Falls Pump Plant and formerly the Alvarado Pump Plant) by July 31, 2001.
	Item 53:	The City shall begin construction of the Waring Road Pump Plant by January 31, 2002.
	Item 56:	The City shall complete construction of the Waring Road Pump Plant by March 31, 2003.
Scope of Work:	Replace existing treated water pump plants.	
Current Status:	Item 51:	Completed.
	Item 53:	Completed.
	Item 56:	Completed.

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 52, 54 & 55		
DPH Mandate:	Item 52:	The City shall submit the drawings for construction of the Catalina Pump Plant by January 5, 2002.
	Item 54:	The City shall begin construction of the Catalina Pump Plant by December 27, 2002.
	Item 55:	The City shall complete construction of the Catalina Pump Plant by December 31, 2004.
Scope of Work:	Upgrade pump plant and replace existing pumps.	
Current Status:	Item 52:	Completed.
	Item 54:	Completed.
	Item 55:	Completed.

Department of Public Health: Compliance Item No. 57, 58 & 62		
DPH Mandate:	Item 57:	The City shall submit the drawings for construction of the Miramar Pipeline Improvement Phase II by September 1, 1998.
	Item 58:	The City shall begin construction of the Miramar Pipeline Improvement Phase II by November 2, 1998.
	Item 62:	The City shall complete construction of the Miramar Pipeline Improvement Phase II by April 3, 2000.
Scope of Work:	Install approximately 4,389 linear feet of 54-inch diameter pipe to replace existing deteriorated pipe between Carroll Canyon Road and Mira Mesa Boulevard and the rehabilitation of approximately 400 linear feet of 51-inch diameter pipe on Mira Mesa Boulevard.	
Current Status:	Item 57:	Completed.
	Item 58:	Completed.
	Item 62:	Completed.

Legend: **Completed** | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 59	
DPH Mandate:	**The City shall submit an alignment and phasing program for the entire Otay 2 Pipeline by June 8, 2000.**
Scope of Work:	**Conduct condition assessment on the Otay 2nd Pipeline. Determine which segments need replacement and investigate the feasibility of extending pipeline life via cathodic protection.**
Current Status:	**Completed.**

Department of Public Health: Compliance Item No. 60, 63 & 65		
DPH Mandate:	**Item 60:**	**Work deleted (Amendment No. 5).**
	Item 63:	**Work deleted (Amendment No. 5).**
	Item 65:	**Work deleted (Amendment No. 5).**
Scope of Work:	**Install approximately 6,725 linear feet of 42-inch diameter pipe north of State Route 94 to replace a section of the existing 36-inch diameter Otay Second Pipeline.**	
Current Status:	**Item 60:**	**Completed.**
	Item 63:	**Completed.**
	Item 65:	**Completed.**

Legend: **Completed** | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 61, 64 & 70		
DPH Mandate:	Item 61:	The City shall submit drawings for the Miramar Pipeline Improvement Phase III by October 1, 2006.
	Item 64:	The City shall begin construction of the Miramar Pipeline Improvement Phase III by March 7, 2007.
	Item 70:	The City shall complete construction of the Miramar Pipeline Improvement Phase III by November 30, 2008.
Scope of Work:		Replace and/or rehabilitate 14,400 linear feet of existing 51-inch pipe on Mira Mesa Boulevard between Stadium Street and Westonhill Drive. Establish an Inspection Program to ascertain the existing pipe condition; and dependent on the outcome of the inspection, the scope of this project may be modified.
Current Status:	Item 61:	Work Deleted (Amendment 11). The Miramar Pipeline Rehabilitation Project's Final Preliminary Design Report (Phase III and IV Addendum) was submitted to DPH on September 19, 2006. Based on the report findings, both Phase III and Phase IV of the Miramar Pipeline are in "low risk" of failure. The City of San Diego will continue to inspect and monitor this pipeline in accordance with the Preliminary Design Report's "Conclusions and Recommendations".
	Item 64:	Work Deleted (Amendment 11).
	Item 70:	Work Deleted (Amendment 11).

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 66, 67 & 68		
DPH Mandate:	Item 66:	The City shall submit the drawings of the Bonita Pipeline Phase II by May 10, 2001.
	Item 67:	The City shall begin construction of the Bonita Pipeline Phase II by October 31, 2001.
	Item 68:	The City shall complete construction of the Bonita Pipeline Phase II by October 1, 2003.
Scope of Work:	Replace approximately 3,100 linear feet of the original 28" Bonita Pipeline with new 30" pipe between 45th Street and 30th Street.	
Current Status:	Item 66:	Completed.
	Item 67:	Completed.
	Item 68:	Completed.

Department of Public Health: Compliance Item No. 69, 71 & 72		
DPH Mandate:	Item 69:	The City shall submit the drawings of the Miramar Pipeline Improvement Phase IV by October 1, 2006.
	Item 71:	The City shall begin construction of the Miramar Pipeline Improvement Phase IV by March 3, 2007.
	Item 72:	The City shall complete construction of the Miramar Pipeline Improvement Phase IV by October 30, 2008.
Scope of Work:	Replace or rehabilitate 12,470 linear feet of 51-inch diameter pipe along Mira Mesa Boulevard and Scripps Lake Drive.	
Current Status:	Item 69:	Work Deleted (Amendment 11). The Miramar Pipeline Rehabilitation Project's Final Preliminary Design Report (Phase III and IV Addendum) was submitted to DPH on September 19, 2006. Based on the report findings, both Phase III and Phase IV of the Miramar Pipeline are in "low risk" of failure. The City of San Diego will continue to inspect and monitor this pipeline in accordance with the Preliminary Design Report's Conclusions and Recommendations.
	Item 71:	Work Deleted (Amendment 11).
	Item 72:	Work Deleted (Amendment 11).

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 73

DPH Mandate:	**The City shall award contracts for construction of at least 10 miles of water main replacement per fiscal year, starting July 1, 1998.**
Scope of Work:	**Replace deteriorating cast iron pipe.**
Current Status:	**The City has increased the cast iron water main replacement program to award 15 miles for fiscal year 2008 and 20 miles for fiscal years 2009 through 2011.**
Note:	**NTP's for miles of replacement pipe were issued as follows:**

- **July 1, 1998 through June 30, 1999 - 14.39 miles**
- **July 1, 1999 through June 30, 2000 - 33.15 miles**
- **July 1, 2000 through June 30, 2001 - 4.53 miles**
- **July 1, 2001 through June 30, 2002 - 16.30 miles**
- **July 1, 2002 through June 30, 2003 - 8.16 miles**
- **July 1, 2003 through June 30, 2004 - 10.60 miles**
- **July 1, 2004 through June 30, 2005 - 1.84 miles**
- **July 1, 2005 through June 30, 2006 - 1.14 miles**
- **July 1, 2006 through June 30, 2007 - 1.04 miles**
- **July 1, 2007 through June 30, 2008 - 21.86 miles**

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 74

DPH Mandate:	**Every six months, the City shall submit evidence of adequate progress toward compliance with item number 73.**
Scope of Work:	**Submit semi-annual reports.**
Current Status:	**Report issued December 31, 1998.** **Report issued July 1, 1999.** **Report issued December 31, 1999.** **Report issued June 30, 2000.** **Report issued December 31, 2000.** **Report issued March 31, 2001.** **Report issued June 30, 2001.** **Report issued January 22, 2002.** **Report issued June 30, 2002.** **Report issued February 18, 2003.** **Report issued August 6, 2003.** **Report issued February 3, 2004.** **Report issued August, 2004.** **Update letter issued to DPH on December 3, 2004.** **Report issued July, 2005.** **Report issued January 12, 2006.** **Report issued August 2, 2006.** **Report issued January 29, 2007.** **Report issued April 30, 2007.** **Report issued November 1, 2007.** **Report issued June 5, 2008.**

Department of Public Health: Compliance Item No. 75

DPH Mandate:	**The City shall submit documentation to demonstrate compliance with state regulations regarding cross-connection control, in all areas of the City that will be served by recycled water. June 30, 1997.**
Scope of Work:	**Submit documentation demonstrating compliance.**
Current Status:	**Completed.**

Legend: **Completed.** | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 76

DPH Mandate: The City shall not supply recycled water within their service area, until the City's cross-connection control program is determined to be in compliance with state regulations, in all areas of the City that will be served by recycled water. "In compliance with state regulations" means the City continues implementing the six required elements of a cross-connection control program required by Section 7584, Group 4, Chapter 5, Title 17, California Code of Regulations. Nothing in this directive shall be construed to alter or delay the construction of water reclamation facilities.

Current Status: The inspectors have been proactive in conducting random inspections of recycled water user sites to ensure public health is maintained. During the second quarter of 2008, seven (7), random inspections of recycled water user sites were completed.

In June 2008, the City of San Diego updated the Rules and Regulations manual for Recycled Water Use. The new manual will be posted on the City's web site as well as mailed to current recycled water customers.

The City of San Diego Municipal Code (Chapter 6, Article 4, Division 8 Water Reclamation & Ocean Monitoring) currently includes a water reclamation policy that is "consistent with legal requirements, preservation of public health, safety and welfare, and the environment." The language, within the municipal code specific to on-site use of recycled water, is in the process of being updated. The revised language is subject to review and approval by the City Council.

City continues implementing the six required elements of a cross-connection control program required by Section 7584, Group 4, Chapter 5, Title 17, California Code of Regulations. This section of Title 17 states "The water supplier shall protect the public water supply from contamination by implementation of a cross-connection control program." The water supplier's cross-connection control program shall address the requirements of Sections 7585 through 7605 including, but not limited to the following elements:

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 76 cont.

(a) Adoption of the operating rules or ordinances to implement the cross-connection program - the City of San Diego has in place the Water Department Instruction DI 55.21 "Policy on Cross Connections and Backflow Prevention" as well as City of San Diego Municipal Code (MC) Chapter IV, Article 4, Section 44.0114 (Cross Connections with Water Supply Prohibited) and Chapter VI, Article 7, Section 67.0202 (Regulation of Water System-Size and Location of Service Connection).

(b) Conducting surveys to identify water user premises where cross-connections are likely to occur - the City of San Diego maintains an ongoing survey program, to date over 57,000 facilities have been surveyed as part of the Cross-Connection Program.

(c) Provisions of backflow protection by the water user at the user's connection or within the user's premises - the City of San Diego's Cross Connection Control Program maintains annual testing documentation of over 22,000 meter protection backflow devices.

(d) Provisions of at least one person trained in cross-connection control to carry out the cross-connection program - the City of San Diego's Cross-Connection Control Program has seven Cross Connection Control Specialist at this time.

(e) Establishment of a procedure or system for testing backflow preventers - the City of San Diego's Water Department, Department Instruction 55.21 " Policy on Cross Connections and Backflow Prevention" outlines these procedures.

(f) Maintenance of records of locations, test and repairs of backflow preventers - the City of San Diego's Cross Connection Control Program maintains two software programs (XC2, SWIM) to track annual notifications of test required, annual test results of devices tested as well as device locations and repair information.

Department of Public Health: Compliance Item No. 77

DPH Mandate:	**To ensure that there are no cross-connections between the reclaimed water piping and the potable water piping, a shutdown test must be performed by WUD and witnessed by the San Diego County Environmental Health Department or DWFOB, prior to delivery of any reclaimed water to any use site, and every four years thereafter. Annually, the potable water purveyor must visually inspect the site and review any changes in piping with the user supervisor.**
Current Status:	**For the year 2008, a total of three hundred and fourteen (314) recycled water meters are scheduled for Annual Inspections and one hundred and twelve (112) meters are scheduled for Quadrennial Shutdown tests. As of June 30, 2008, one hundred sixty (160) annual inspections and seventeen (17) Quadrennial Shutdown tests have been completed.**

Department of Public Health: Compliance Item No. 78

DPH Mandate:	**Each recycled water use site must have an adequately trained user supervisor in order to control the on-site piping and prevent any cross connections. The user supervisor must keep as-built plans up to date and on the site.**
Current Status:	**Each site has its own site supervisor who completed the "Recycled Water Site Supervisor Training" provided by the San Diego County Water Authority. The Water Department maintains a recycled water customer database that includes the site supervisor information. The information on this list is confirmed or updated after the completion of each inspection. Before a site is switched from potable to reclaimed water service, a shutdown test is conducted and witnessed by DEH and/or DPH. In addition, the City of San Diego Water Department maintains site As-Built for records and references of any inspection requirements.** **The City recently completed development of a Site Supervisor Certification course to be provided to customers on a quarterly basis or more frequently if needed. City of San Diego customers will have the option of attending either the CWA or City sponsored course. The first City sponsored session will be on August 12, 2008. DPH approved the City course and certification process.**

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 79	
DPH Mandate:	By February 28, 1997, the City shall start work on the remaining 429 air and vacuum relief valves and air release valves in the City's water system, that must have their vents raised above grade.
Scope of Work:	Raise air and vacuum relief valves and air release valve vents above grade.
Current Status:	Completed.

Department of Public Health: Compliance Item No. 80	
DPH Mandate:	The City shall complete work on thirty percent of the remaining 429 air and vacuum relief valves and air release valves in the City's water system that must have their vents raised above grade, by July 28, 1999.
Scope of Work:	Raise vents for air and vacuum relief valves above ground level.
Current Status:	Completed.

Department of Public Health: Compliance Item No. 81	
DPH Mandate:	The City shall complete the work on sixty percent of the remaining 429 air and vacuum relief valves and air release valves in the City's water system, that must have their vents raised above grade, by July 28, 2000.
Scope of Work:	Raise the air vents of air and vacuum relief valves and air release valves above grade.
Current Status:	As of March 31, 2001, 377 of the vents had been raised above ground. This represents 87.9 percent of the 429 air and vacuum relief valves and air release valves to be raised. Completed.

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 82	
DPH Mandate:	The City shall complete the cross-connection control survey in all areas of the City (to determine the need for backflow protection at all service connections) by June 30, 2007.
Scope of Work:	Conduct cross connection survey.
Current Status:	The City can attest to 54,787 facilities that have been inspected, out of approximately 54,787 that need to be checked.

Department of Public Health: Compliance Item No. 83	
DPH Mandate:	Every six months the City shall submit documentation to demonstrate adequate progress toward compliance with item number 82.
Scope of Work:	Submit semi-annual reports to report on Compliance Order No. 82.
Current Status:	The City has been performing a thorough evaluation of all the data related to backflow prevention in the City. The City can confirm that 54,787 facilities have been inspected for backflow requirements. A review of our database has verified that 54,787 facilities requiring survey, pursuant to the compliance order, have been completed. The City of San Diego Cross Connection Control Program will continue to survey and inspect new and existing sites and update the data accordingly.

Department of Public Health: Compliance Item No. 84	
DPH Mandate:	The City shall complete construction of the Black Mountain Road Pipelines by September 30, 2004.
Scope of Work:	Provide additional treated water and reclaimed water pipelines to support current and future demands in the North City area.
Current Status:	Completed.

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 85	
DPH Mandate:	The City shall begin construction of the Rancho Peñasquitos (formerly Rancho Bernardo) Pump Station by January 31, 2008.
Scope of Work:	Provide additional pumping capacity to meet current and projected demand in the Rancho Bernardo 793 zone.
Current Status:	Completed

Department of Public Health: Compliance Item No. 86	
DPH Mandate:	The City shall end construction of the Rancho Peñasquitos (formerly Rancho Bernardo) Pump Station by January 31, 2010.
Scope of Work:	Provide additional pumping capacity to meet current and projected demand in the Rancho Bernardo 793 zone.
Current Status:	End of construction is delayed due to delay of construction start. The construction is anticipated to complete by the end of February 2010.

Department of Public Health: Compliance Item No. 87	
DPH Mandate:	The City shall start construction of the Miramar Water Treatment Plant Contract A (consisting of construction of Pre-Treatment Facilities, Filtration Facilities, Chemical Facilities, Ozone Contactors, and Administration Building and demolition of Flocculation and Sedimentation Basin No. 4) by June 12, 2004.
Scope of Work:	This project is part of the expansion of Miramar Water Treatment Plant from 140 MGD to 215 MGD.
Current Status:	Completed

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 88	
DPH Mandate:	The City shall complete construction of the Miramar Water Treatment Plant Contract A (consisting of construction of Pre-Treatment Facilities, Filtration Facilities, Chemical Facilities, Ozone Contactors, and Administration Building and demolition of Flocculation and Sedimentation Basin No. 4) by June 30, 2008.
Scope of Work:	This project is part of the expansion of Miramar Water Treatment Plant from 140 MGD to 215 MGD.
Current Status:	Completed.

Department of Public Health: Compliance Item No. 89	
DPH Mandate:	The City shall start construction of the Miramar Water Treatment Plant Contract B (consisting of three Flocculation and Sedimentation Basins, demolition of Flocculation and Sedimentation Basin No. 3 and rehabilitation of the operations building) by March 31, 2008.
Scope of Work:	This project is part of the expansion of Miramar Water Treatment Plant from 140 MGD to 215 MGD.
Current Status:	Completed.

Department of Public Health: Compliance Item No. 90	
DPH Mandate:	The City shall complete construction of the Miramar Water Treatment Plant Contract B (consisting of three Flocculation and Sedimentation Basins, demolition of Flocculation and Sedimentation Basin No. 3 and rehabilitation of the operations building) by March 31, 2010.
Scope of Work:	This project is part of the expansion of Miramar Water Treatment Plant from 140 MGD to 215 MGD.
Current Status:	On Schedule.

Legend:	Completed	Open Status	Since Last Report

Department of Public Health: Compliance Item No. 91	
DPH Mandate:	The City shall start construction of the Miramar Water Treatment Plant Contract C (consisting of Ozone equipment) by June 30, 2008.
Scope of Work:	This project is part of the expansion of Miramar Water Treatment Plant from 140 MGD to 215 MGD.
Current Status:	Completed.

Department of Public Health: Compliance Item No. 92	
DPH Mandate:	The City shall complete construction of the Miramar Water Treatment Plant Contract C (consisting of Ozone equipment) by March 31, 2010.
Scope of Work:	This project is part of the expansion of Miramar Water Treatment Plant from 140 MGD to 215 MGD.
Current Status:	On Schedule.

Department of Public Health: Compliance Item No. 93	
DPH Mandate:	The City shall begin construction of the Otay 2nd Pipeline, along 54th Street, between El Cajon Boulevard and Redwood Street, by March 31, 2008.
Scope of Work:	Replace deteriorating cast iron pipe and increase capacity to meet current and projected demands.
Current Status:	Completed.

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 94	
DPH Mandate:	The City shall complete construction of the Otay 2nd Pipeline, between El Cajon Boulevard and Redwood Street, by March 31, 2010.
Scope of Work:	Replace deteriorating cast iron pipe and increase capacity to meet current and projected demands.
Current Status:	On Schedule.

Department of Public Health: Compliance Item No. 95	
DPH Mandate:	The City shall start construction of the Alvarado Water Treatment Plant ozone equipment by June 30, 2008.
Scope of Work:	This is part of the expansion program to increase capacity of the Alvarado WTP from 120 MGD to 200 MGD. This item requires ozone disinfection as part of the expansion.
Current Status:	Completed.

Department of Public Health: Compliance Item No. 96	
DPH Mandate:	The City shall complete construction of the Alvarado Water Treatment Plant ozone equipment by December 31, 2010.
Scope of Work:	This is part of the expansion program to increase capacity of the Alvarado WTP from 120 MGD to 200 MGD. This item requires ozone disinfection as part of the expansion.
Current Status:	On Schedule.

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 97	
DPH Mandate:	**The City shall begin the rehabilitation of the Otay Water Treatment Plant Phases I and II, by September 30, 2008.**
Scope of Work:	**Construct a new flocculation and sedimentation basin, improvements to the existing sixteen (16) filters, and install a chlorine dioxide primary disinfectant.**
Current Status:	**On Schedule.**

Department of Public Health: Compliance Item No. 98	
DPH Mandate:	**The City shall complete the rehabilitation of the Otay Water Treatment Plant Phases I and II, by December 31, 2010.**
Scope of Work:	**Construct a new flocculation and sedimentation basin, improvements to the existing sixteen (16) filters, and install a chlorine dioxide primary disinfectant.**
Current Status:	**On Schedule.**

Department of Public Health: Compliance Item No. 99	
DPH Mandate:	**The City shall begin the Alvarado Water Treatment Plant Phase III (Rehabilitation of the old Flocculation and Sedimentation Basins) by December 31, 2010.**
Scope of Work:	**Rehabilitation of the Alvarado Water Treatment Plant old Flocculation and Sedimentation Basins I and II.**
Current Status:	**On Schedule.**

Legend: Completed | Open Status | Since Last Report

Department of Public Health: Compliance Item No. 100	
DPH Mandate:	**The City shall complete the Alvarado Water Treatment Plant Phase III (Rehabilitation of the old Flocculation and Sedimentation Basins) by June 30, 2012.**
Scope of Work:	**Rehabilitation of the Alvarado Water Treatment Plant old Flocculation and Sedimentation Basins I and II.**
Current Status:	**On Schedule.**

Legend: Completed | Open Status | Since Last Report

ATTACHMENT 2

2009B COMPONENTS OF PROJECT

CIP Number	Project Title	Project Type	Justification for inclusion to the 2009B Components	Anticipated amount of 2009B proceeds
709420	Annual Allocation - Pooled Contingencies - RWDS	Reclaimed Pipelines	EPA goal of 50% beneficial use of Reclaimed Water	$417,533
709490	Annual Allocation - Reclaimed Water Extension	Reclaimed Pipelines	EPA goal of 50% beneficial use of Reclaimed Water	$470,122
730240	Annual Allocation - Freeway Relocations	Pipelines	CALTRANS Related	$43,503
730830	Annual Allocations - Water Main Replacements	Pipelines	CDPH Requirement	$41,150,453
733100	Annual Allocations - Corrosion Control	Miscellaneous	Operational Requirement of Water System	$87,014
733310	Annual Allocations - Pooled Contingencies - Water	Miscellaneous	CDPH Related Requirement	$6,090,836
733610	Annual Allocations - Meter Boxes	Miscellaneous	Operational Requirement of Water System	$435,063
739000	Annual Allocations - Pressure Reducing Stations	Miscellaneous	Operational Requirement of Water System	$240,000
749250	Annual Allocations - Dams and Reservoirs	Storage Facility	Operational Requirement of Water System	$217,526
709107	Miramar Pipeline Monitoring	Pipelines	CDPH Requirement	$474,045
709545	Carmel Valley Reclaimed Water Pipeline	Reclaimed Pipelines	EPA goal of 50% beneficial use of Reclaimed Water	$3,653,541
709548	Los Penasquitos Canyon RW Project	Reclaimed Pipelines	EPA goal of 50% beneficial use of Reclaimed Water	$2,616,775
709553	Pacific Highlands RWP - Participation Agreement	Reclaimed Pipelines	EPA goal of 50% beneficial use of Reclaimed Water	$70,776
709555	Camino Del Sur RWP - E&CP	Reclaimed Pipelines	EPA goal of 50% beneficial use of Reclaimed Water	$516,882
709556	Camino del Sur Recycled Water Pipeline	Reclaimed Pipelines	EPA goal of 50% beneficial use of Reclaimed Water	$844,892
709570	Harbor Drive Pipeline	Pipelines	CDPH Related Requirement	$220,667
730285	Caltrans - I905 Project	Pipelines	CALTRANS Related	$1,054
730287	Caltrans-El Monte-Route 67 Project	Pipelines	CALTRANS Related	$35,940
730290	Caltrans Carroll Canyon and I-15 Reclaimed Water	Pipelines	CALTRANS Related	$546
732480	Pomerado Pipeline No. 2	Pipelines	Operational Requirement of Water System	$9,335

732621	Alvarado WTP-Ozone Improvement	Water Treatment Plant	CDPH Requirement	$21,041,863
732623	Alvarado WTP Rehab Floc/Sed Basin Phase 3	Water Treatment Plant	CDPH Related Requirement	$17,925,950
732843	Miramar WTP SDFCF 24, 25, 26	Water Treatment Plant	CDPH Related Requirement	$930,633
732844	Miramar WTP Contract B - Floc/Sed Basin	Water Treatment Plant	CDPH Requirement	$14,158,870
732845	Miramar WTP Contract D - Landscape & Site Improvement	Water Treatment Plant	CDPH Related Requirement	$22,364
732846	Miramar WTP Contract C - Ozone Equip/Install	Water Treatment Plant	CDPH Requirement	$8,946,011
732850	Otay WTP Upgrade Phase 1 (Flocc/Sed Basin & Reh)	Water Treatment Plant	CDPH Requirement	$6,941,786
732852	Otay WTP Upgrade Phase 2	Water Treatment Plant	CDPH Requirement	$4,101,343
732866	Otay 2nd Pipeline - Cast Iron Replacement Phase	Pipelines	CDPH Requirement	$2,797,064
732868	Otay 2nd Pipeline - North Encanto Replacement	Pipelines	CDPH Related Requirement	$188,054
733140	SD 17 Flow Control Facility (Alvarado)	Security	Grant Funded	$8,366,922
733170	Barrett Reservoir Outlet Tower Upgrade	Storage Facility	Operational Requirement of Water System	$4,133
733420	Rancho Penasquitos Pump Station	Pump Station	CDPH Requirement	$4,245,056
733430	Lower Otay Reservoir - Emergency Outlet Improvement	Storage Facility	CDPH Related Requirement	$139,042
739101	Fault Crossing Retrofits to Large Pipelines	Pipelines	Grant Funded	$235,744
739103	Landslide/Liquefaction Pipeline Mitigation	Pipelines	Grant Funded	$297,197
749256	San Carlos Reservoir Interior Enhancement	Storage Facility	Operational Requirement of Water System	$394,860
749755	Lake Hodges Dam Modification	Storage Facility	Operational Requirement of Water System	$31,070
759310	Water Dept. Security Upgrades	Security	Grant Funded	$415,356
759324	San Pasqual Brackish Groundwater Desalination Demo	Groundwater	Long-Range WRP Goal	$257,658
759329	Groundwater Pilot Production Wells	Groundwater	Long-Range WRP Goal	$867,322
999999	Dulzura Conduit Concrete Covers	Miscellaneous	Operational Requirement of Water System	$95,200
	GRAND TOTAL			**$150,000,000**

CDM

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ATTACHMENT 3

City of San Diego Water Utility

Report on the Engineering and Financial Feasibility Study – Revenue Bond Series 2009

October 3, 2008

Final

City of San Diego Water Utility

Report on the Engineering and Financial Feasibility Study – Revenue Bond Series 2009

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Executive Summary

CDM has prepared this Engineering and Financial Feasibility report at the request of the City of San Diego Water Department in connection with the proposed issuance of approximately $400.4 million of Revenue Bonds, Series 2009 A and B. The total amount of bonds issued may increase should refunding of a portion or all of the outstanding 1998 Revenue Bonds be economically feasible. For purposes of this report such refunding has not been included.

Study Methodology

- The City of San Diego Water Department provided extensive documentation related to Department budget, operations, capital planning, water supply planning, and staffing. In addition, CDM conducted interviews with Department operations, engineering and management staff to review operation and capital planning processes.

- Physical inspections of a sample of above ground reservoirs, pump stations, treatment plants and facilities were conducted to review physical condition and operating practices.

- CDM has examined the financial operations of the Department through reviews of financial reports, operating and capital budgets, financial models, and other statistical and financial information, and through discussions with the Department's financial staff. We have performed independent financial tests and analyses necessary to support our findings and opinions.

- The results of our investigations and analyses are presented in this report, with separate sections describing principal assumptions, organization, regulatory issues, water system infrastructure, operations and maintenance, planned capital improvements, water system financing, and the additional bonds coverage test.

Organization

- The City of San Diego Water Department operates under the authority of the City and its elected mayor and City Council. The Water Department Service Area includes the City of San Diego and other wholesale customers (California-American Water Company, City of Del Mar, Santa Fe Irrigation District, San Dieguito Water District).

- Key management personnel have the necessary qualifications and experience to effectively manage the operations of the Water Department and assure timely implementation of the Capital Improvement Program ("CIP").

- The Water Department is operated under an enterprise fund, which meets the budgetary, auditing, cost accounting and other financial needs of the Water

Department. All connection fee proceeds are restricted to growth-related project expenditures and maintained in a separate account.

Water System Infrastructure

- The Water Department is responsible for the construction, operation and maintenance of water treatment plants, reservoirs, pump stations and pipelines within its service area. These facilities include 3 treatment plants, 9 raw water reservoirs, 32 treated water reservoirs, 49 pumping stations, and 3,460 miles of pipeline.

- The City has not been able to access the public municipal bond market for several years, but the Water Department capital program has continued. The planning and design efforts have progressed so that projects would be ready to go to bid and construction when bond funds became available. Moreover, essential project construction has not been postponed, as funding on a cash "pay-go" basis, and short-term notes, have been used for project construction costs.

- The Water Department's capital planning process includes "big picture" strategic planning that considers the impacts of regulations, growth, and rehabilitation and replacement in the development and prioritization of projects for the capital program. While projects related to regulatory requirements have the highest priority, projects for rehabilitation and replacement of aged infrastructure are also included. Work to prepare an updated master plan for water facilities will begin by the end of 2008.

- Field inspections of a representative sampling of the City's facilities were conducted in July 2008, utilizing a ranking system of 1 to 3.

- The City has been working closely with the California Department of Public Health (CDPH) for a number of years to bring the water utility system into compliance with current CDPH requirements, and is in a position to evaluate and address potential impacts that may arise with future regulations. The current CIP list gives high priority to projects that address regulatory compliance issues.

Water System Financing

- The Water Department CIP has been developed using a capital project prioritization process that has been adopted by the City Council. This policy establishes an objective process for ranking CIP projects to have a basis for choosing the most compelling projects for implementation. The following prioritization factors are listed in order of importance:

    - Health and Safety Effects

    - Regulatory or Mandated Requirements

- Implications of Deferring the Project
- Annual Recurring Cost or Increased Longevity of the Capital Asset
- Community Investment
- Ease of Implementation
- Project Cost and Grant Funding Opportunity
- Project Readiness

- The proposed CIP for the study period of FY 09 through FY 13 totals some $724 million, including over $207 million for treatment plant projects, $280 million for pipeline projects and $237 million for other projects.

- The Department plans to fund 80 percent of project expenditures with bond funds, with the remainder funded from net operating revenues on a pay-as-you-go basis.

- Currently, the 273,000 customer accounts serve approximately 1.3 million residents, along with businesses and institutions. Population growth is projected at about 1 percent per year while water demands are less due to increasing water conservation practices.

- An estimated 15 percent voluntary reduction in water demand has been projected for FY 09 and FY 10 in response to a Stage 1 Voluntary Compliance Water Watch declared in July 2008 by the City due to the shortages in regional and imported water supplies.

- Water Department revenues are derived principally from water service charges and impact fees on new connections. In February 2007, the City adopted a series of 6.5 percent rate increases to be implemented annually through 2011. In addition, in November, the City Council will be requested to approve a rate increase to recover revenue in the amount of the increased water wholesale purchase costs from the County Water Authority which will become effective in January 2009. Furthermore, the City Council will be requested to approve a temporary rate increase to support the Indirect Potable Reuse Pilot Project (IPR).

- The Water Department maintains a financial planning model (rate case) that identifies rate and fee adjustments required for the long-term sustainable funding of operations and the capital program while maintaining financial reserve fund target levels and complying with all bond covenants.

- The cash flow analysis of projected revenue and revenue requirements presented in Table 4-9 of the report shows that projected revenues, including approved service charges and bond proceeds, will be sufficient to adequately and sustainably operate

and maintain the Water System, maintain or exceed all targeted reserve levels, pay existing and proposed debt service, comply with existing bond covenants, and provide cash from net operating revenues for CIP project expenditures.

- As demonstrated in Table 4-10, the Water Department expects to remain in full compliance with its bond covenants for existing and projected debt service coverage over the projection period. Based on the enacted water rates to be effective in FY 09, FY 10 and FY 11, the annual debt service coverage for all senior debt will exceed 284 percent. Moreover, aggregate debt service coverage on existing bonds, after the refinancing of $207 million in private placement notes, will exceed 157 percent.

Opinions

- Based on the engineering and financial studies performed related to the System, we believe that the Water Department's organizational structure, planned CIP, and financing plans are sound for purposes of ensuring reliable service and for repaying the bonded debt service on all existing and proposed bonds during the projection period.

- Correspondence with the California Department of Public Health (CDPH) was compared to the proposed CIP listing to confirm that outstanding compliance issues which would be remediated by capital construction were included within planned projects. Project progress is within the compliance schedule set by CDPH. No other compliance or regulatory issues were identified during the term of this study.

- Estimates of project costs for the planning period are reasonable and include allowances for contingencies and inflation. Moreover, it is our opinion that the projects can be completed as scheduled. While the City's centralized Engineering and Capital Project Department has a limited one-year history of completing projects, they have the personnel, policies and practices in place that indicate the ability to manage and implement the proposed five-year CIP. Many of the Department staff have a history of work with the Water Department and the new Department has the ability to access additional staffing resources when needed as the CIP expenditures increase.

- It is our opinion that the Water Department's practice of cash financing at least 20 percent of total CIP expenditures represents a reasonable balance between cash and debt financing of capital improvement needs for the System. Moreover, our evaluation of sources and uses of funds suggests that additional annual net revenues will be available after FY 09 for cash financed "pay-go" projects in excess of 20 percent of the total CIP.

- The above-ground physical facilities inspected are generally well maintained, modern and in good condition. The projections of operating results presented in

our report are based on reasonable projections of future revenue and expenses, and conservative growth estimates. Unanticipated changes in conditions, such as a worsening or long-term continuation of the existing water shortages, would only slightly reduce the annual net revenues, as the reduction in water service revenues would be significantly offset by reductions in the Water Department's cost of water purchases. The Department may, however, need to further adjust the level of revenues, reserves and/or expenses if significant changes in conditions occur.

- Based on the financial projections and analyses presented in this report, it is our opinion that the Water Department will be able to adequately finance the five-year CIP, meet all cash requirements of the Water System, and comply with all debt service coverage requirements during the study period.

These summary statements do not address all of the issues examined and described in the full report. Accordingly, the findings and conclusions presented herein should not be considered complete except in the context of the detailed descriptions and information contained in the report.

Section 1
Introduction

The City of San Diego Water Department (the "Water Department") provides water treatment and distribution services to over 1.3 million people through over 273,000 service connections. Its service area covers 403 square miles, of which 342 square miles are within the City boundaries. The water sold by the Department is a combination of imported supplies purchased from the San Diego County Water Authority ("CWA") and local water supplied by City-owned surface water. The City's water treatment and delivery system ("Water System") comprises three City-owned water treatment facilities and a water delivery system that includes 9 raw water reservoirs, 32 treated water reservoirs, 49 pump stations and over 3,460 miles of water lines. In addition to retail service to residences and businesses within the City, the Water Department supplies water to wholesale customers, including: California-American Water Company, City of Del Mar, Santa Fe Irrigation District and San Dieguito Water District. The Water Department also distributes recycled water for landscape irrigation to a number of customers including City and federal offices and parks, California Department of Transportation (CALTRANS), U.S. Navy, University of California at San Diego (UCSD), and private businesses.

From 2003 to 2008, the City was unable to access the public bond market. However, during that time the Water Department continued to plan, design and construct capital projects using cash and private placement note issuances for financing. During the 2003-2008 period, 86 projects were completed at a capital expenditure of over $595 million.

To continue to operate, maintain and expand the City water facilities while remaining in compliance with state and federal health and safety regulations, the Water Department has identified a capital program that will be 80 percent financed with long-term bonds. Additional funds for the program will come from net operating revenues (primarily service charges). Also, existing short-term notes that funded essential projects in 2007 and 2008 will be refinanced with the proposed bond proceeds.

Throughout this study, references to a particular fiscal year always use the end date. For example, Fiscal Year 2007-2008 (July 1, 2007 through June 30, 2008) is described as FY 08.

1.1 Background

The City of San Diego incorporated in 1850 and purchased the local water company in 1901 to begin municipal water service. The City operates under a "strong mayor" form of government, and as a department of the City's Public Utilities Group, the Water Department ultimately reports to the elected mayor and the eight-member City Council, who are elected by district.

In 1944, the City and other local water purveyors formed the CWA with the express purpose of gaining access to imported water supplies as a member agency of the Metropolitan Water District of Southern California ("MWD"). In 1947, the first MWD water was delivered to the San Diego area. Of the 35 member CWA Board of Directors, the City holds 10 voting positions.

1.2 Purpose

The purpose of this study is to investigate the principal facets of the Water System that may impact the security of the proposed bond issue, and to provide an independent engineering, institutional, operational and financial analysis of the proposed bond's feasibility for review by bond issuing agents and potential investors. This report assesses the condition of the Water System, need for scheduled capital improvements, and the financial feasibility of the Capital Improvement Program ("CIP").

1.3 Scope

This report provides a summary of the engineering evaluation of existing and planned facilities and a five-year (FY 09 - FY13) financial analysis for determining the financial strength of the Water Department and its capability of meeting debt service requirements on existing and proposed bonds.

The scope includes review of key issues relating to water supply and regulatory impacts, the existing facility planning reports, field inspections of certain key water facilities, review of water demand projections used for facility planning, review of environmental and permitting regulations, and review and evaluation of the existing CIP.

Evaluation of the financial feasibility of the proposed CIP is based upon a review of historical financial information provided by the Water Department, an examination of the Water Department's revenue and expenditure projections, and the preparation of cash flow analyses examining the sources and uses of funds relating to the projected system operating and capital expenditures through FY 13. The projected level of debt service coverage for the proposed FY 09 and future revenue bond issues are determined and compared with the requirements of the bond coverage tests.

1.4 CDM Qualifications

CDM has prepared this engineer's statement of bond feasibility. CDM is one of the country's largest engineering firms specializing in water, wastewater, and solid waste, with nearly 4,000 staff located in more than 85 offices throughout the United States. CDM has offices along the entire west coast and is familiar with the unique environments in which our clients operate.

CDM has extensive experience in water and wastewater utility planning, financing, design, and operations analysis. Our clients range from very small communities to large municipalities. CDM, and in particular the project staff for this study, have extensive experience throughout California and a history of working with the City. CDM has prepared more than 50 engineer's statement of bond feasibility reports over the past decade to assist 35 separate entities issue nearly $7.5 billion in bonds. This experience can provide stakeholders with the confidence that a thorough and effective analysis demonstrates that the Water Department is stable, well-managed, and capable of successful project execution and sustainable utility operations.

1.5 Organization

As discussed earlier, the City has been in the business of providing water services to its citizens for over 100 years. During this time, the City has grown from a population of approximately 650 persons in 1850, to 350,000 in 1950, and approximately 1.3 million in 2007. The Public Utilities Group oversees the operations of the Water and Metropolitan Wastewater Departments. In the City's 2009 budget document, the Water Department had a budget of over $533 million and a staff of 778 persons. The Water Department is divided into 4 divisions as illustrated in Figure 1-1.

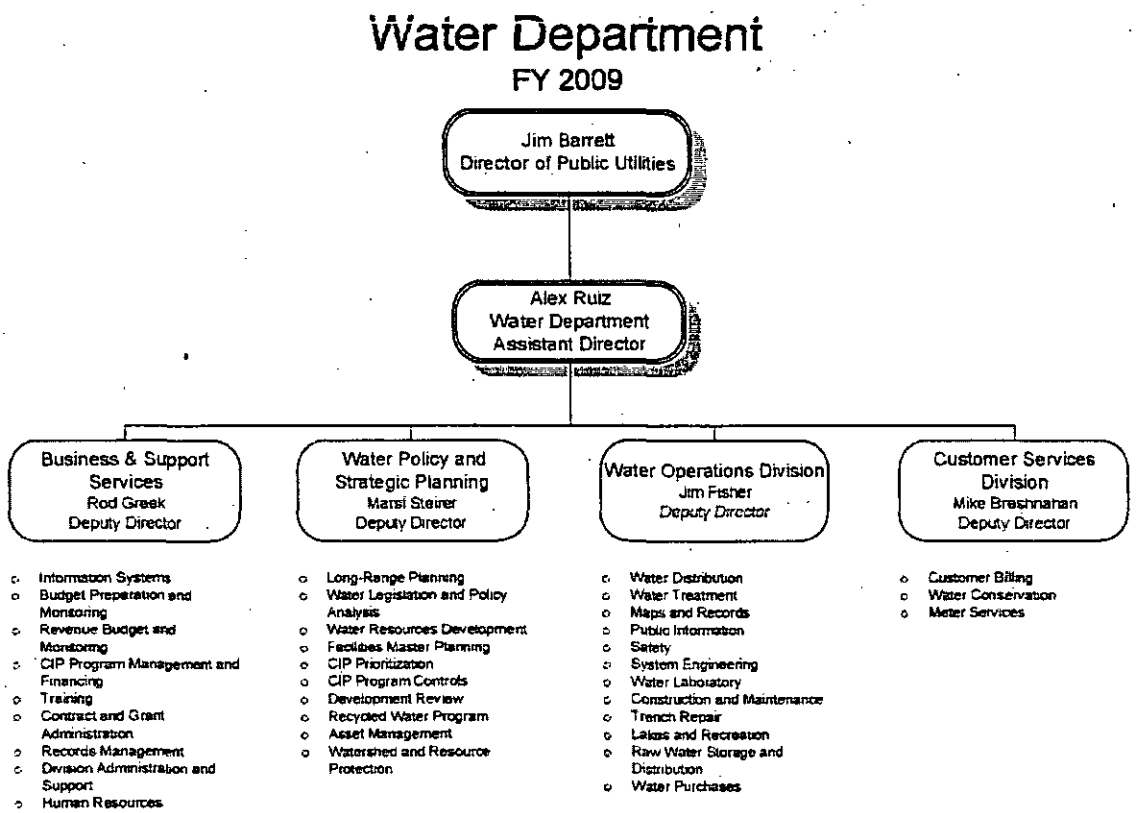


Figure 1-1
Water Department Organization Chart

The Director of Public Utilities and Water Department Assistant Director and the four divisions and their current managers are:

- Director of Public Utilities – Jim Barrett
- Assistant Director – Water - Alex Ruiz
- Business and Support Services – Deputy Director – Rod Greek
- Customer Services Division – Deputy Director – Mike Breshnahan
- Water Operations Division – Deputy Director – Jim Fisher
- Water Policy and Strategic Planning – Deputy Director – Marsi Steirer

In addition to these four divisions, the City has a centralized Engineering and Capital Projects Department that provides the Water Department with a full range of engineering and construction services. Further discussion of the institutional design and operation of the Water Department and other services provided by the City is discussed in Section 3.

Section 2
Assumptions

In the preparation of the forecast of future operations summarized in this report, we have made certain assumptions with respect to conditions, events, and circumstances that may occur in the future. While we believe such assumptions are reasonable and attainable for the purpose of forecasting the Water Department's future operations, the actual results may differ materially from the forecast. The principal assumptions used in the forecast of future operations are as follows:

- In preparation of this report, we have relied on historical, financial, and statistical data supplied by Water Department staff. While such data is considered reliable, we have not independently verified the accuracy of such data.

- The Water Department's estimates of content, scheduling, and cost of the five-year CIP present a projection of the future construction program. Water Department staff is continually updating the CIP, which may result in changes in the project costs and schedule after the publish date of this report. These changes typically are related to updated prioritization of projects that does not materially affect the financial feasibility of the proposed bonds.

- Debt service schedules for existing bonds were provided by Water Department staff. The principal repayments on 2007 and 2008 private placement notes issued for Water Department project expenditures will be funded from the proposed Series 2009 Bonds. The projected debt service for the proposed Series 2009 Bonds has been provided by Water Department staff. As the Series 2009 Bond proceeds will fund projects through FY 2010, this analysis also includes additional Water Department bonds anticipated in the five-year period ending in FY 13. The financing terms for these additional bonds were provided by Water Department staff. The series 2009 Bonds and all additional bonds were assumed to be senior debt.

- An estimated four percent (4 percent) annual inflationary escalation has been used for CIP projects based on the Engineering News Record Construction Cost Index most recent 10-year annual average. Operating expenses generally inflate at 4 percent per year (based upon the Consumer Price Index), except for electricity and other utilities, which are forecasted to inflate at 8 percent per year. After 2009, escalations in the projected unit water supply purchase costs are not included. These increases, when implemented by CWA, are evaluated and customarily passed through to the City's water customers following Proposition 218 notice and upon approval by the City Council and Mayor. Approximately 40 percent of the average customer water bill is for water supply costs, but projections of the unit water purchase rates do not materially affect any findings in this analysis.

- The Water Department operating projections include the expense of improved and expanded Water Department facilities that come on-line during the projection

period. The Water Department receives both raw and treated water supplies from CWA. The proportion of these two supplies delivered to the different districts in the City is based on long-term planning criteria to minimize the citywide long-term costs of water services.

- There are no expected material changes in federal and state laws or regulations that would adversely impact the Water Department's ability to secure tax-exempt financing for the capital program, place more stringent limitations on water quality, materially increase the cost of constructing or operating the Water System, or otherwise adversely impact operations of the Water System. The general economy that impacts Water System costs and user's capabilities to pay water service charges is expected to remain relatively stable, in spite of the slowing of the Southern California economy and home sales markets.

- In July 2008, the City declared a Stage 1 Voluntary Compliance Water Watch, and called for voluntary reductions in non-essential water demands. The Water Department, as reflected in this analysis, has projected a 15 percent reduction in typical customer demands and in the need for water supply purchases for the projected years FY 09 and FY 10. Demands are assumed to return to normal by FY 2011.

- Rate adjustments this November to pass through additional CWA water costs and to fund the IPR pilot project will be approved and have been included in the analyses.

- All revenue and revenue requirement projections presented in this report are expressed on a cash basis identifying the sources and uses of funds, consistent with the Water Department's operating budgets and general industry standards for municipally owned and operated water utilities.

Section 3
Water System

The purpose of this section is to describe and discuss the City's water system. These descriptions include discussion of the Department's organizational structure, water supply, regulatory issues, current system facilities, utility operations and maintenance practices, and the capital improvement plan to rehabilitate, replace and expand the water system infrastructure.

3.1 Background

The City has approximately 273,000 retail connections serving 1.3 million residents, businesses and institutions. Citywide water facilities include three water treatment plants, 9 raw water reservoirs, 32 treated water reservoirs, and 49 pumping stations. The water system is managed and operated by the Water Department within the City's Public Utilities Group.

In 2007, the City Council adopted a series of four 6.5 percent water rate adjustments. This revenue stream will support both the operation and CIP expenditures through the projection period of this analysis. The FY2009 budget increased funding for deferred maintenance and capital projects, and funding of the City's general fund, workers' compensation, and public liability reserve funds. In addition, the City has recently issued Comprehensive Annual Financial Reports providing unqualified external audit opinions for fiscal years 2003, 2004, 2005, 2006, and 2007. These actions have increased financial stability of the City at large and the Water Department, and set the stage for renewed use of water revenue bond financing.

Over the last five years, the City has purchased an average of 90 percent of its water from the San Diego County Water Authority ("CWA"), with the remainder from local surface and groundwater sources and the use of recycled water for irrigation. The City projects that with increases in the sale of recycled water and consistent use of local surface water, City purchases of CWA water could drop to around 85% of its water supply. Approximately 90 percent of CWA supplies are currently imported from the Metropolitan Water District of Southern California ("MWD"), a value that is projected to drop significantly over the next decade. In 2007, 230,000 acre-feet of water was delivered to customers citywide. A 7 percent increase in this demand is anticipated between 2007 and 2020, driven primarily by a projected 14 percent increase in the City's population.

As a component of this study, we have reviewed the organizational structure and institutional relationships of the Water Department. This review focuses primarily on the ability of the Water Department to plan and implement capital projects.

3.2 Organizational Structure/Institutional Analysis

The Water Department and the Metropolitan Wastewater Department make up the San Diego Public Utilities Group. The Water Department is divided up into four divisions, which generally fall into the planning, operations and business functions needed for management of the utility. The organization chart in Section 3 on page 1-3 provides a summary list of the program responsibilities of each division. Each of these divisions shares a role in the implementation of the Water Department's capital program including service levels and facility maintenance requirements, regulatory compliance, project definition and prioritization, preliminary design, budgeting and financial management. In addition to the services provided within the Water Department, the City has recently centralized the provision of engineering services for capital projects. The Engineering and Capital Project Department works with the Water Department to take capital projects from the preliminary design phase to full design, bidding and construction. Services provided by this department are formalized through a service level agreement and coordinated regularly with Water Department staff.

3.3 Water Policy and Strategic Planning

The Water Policy and Strategic Planning Division leads the strategic and capital project planning efforts to provide for both water supply and the facilities needed to distribute water to customers. City water supply planning includes consideration of local supply development and management, and active involvement in issues related to the imported water supply. The Water Department is responsible for facilities planning through the preliminary design phase. Facilities planning includes evaluation of regulatory requirements, growth impacts and system condition.

3.3.1 Water Supply Planning

The City's current water supply portfolio includes water purchased from CWA, recycled water produced by the City, and local surface water. The City purchases treated and untreated water from CWA. The City is one of 24 cities and water agencies who make up the membership of the CWA. The City population is 43 percent of the total within the CWA service area, and the City has 10 of the 35 directors on the CWA Board.

Over the last five years (2003-2007), the City has purchased an average of more than 90 percent of its water from the CWA with the other supplies from City-controlled local sources. These include surface water, recycled water and groundwater. Successful efforts to increase local sources could reduce future CWA deliveries to the City to approximately 85 percent within the next five years.

Since 1990, approximately 85 to 90 percent of CWA's water supplies have been from MWD, which imports water from the Bay-Delta area in Northern California and from the Colorado River. In response to the Western region drought conditions, reductions in surplus water available from the Colorado River, and pumping restrictions from

the Bay-Delta, MWD has recently instituted reductions in delivery of agricultural water linked to those who purchased water under a voluntary interruptible supply and delivery of water for groundwater recharge projects. These recent reductions have had a minimal impact on the City but depending on the resolution of the environmental issues in the Bay-Delta and the drought-related water shortages, further delivery reductions may occur. Currently the City is in a Stage 1 Voluntary Compliance Water Watch, and voluntary reduction in non-essential demand is projected to reduce water consumption by 15 percent below normal levels in 2009 and 2010.

In recent years, in an effort to diversify water supply sources and reduce reliance on water from MWD, the City and CWA have both worked to expand water supply options. CWA has developed a water transfer agreement with the Imperial Irrigation District and a canal lining project that have resulted in the delivery of 55,000 acre-feet ("AF") in 2007 to the CWA supply structure. By the year 2020, these two programs are expected to provide 267,000 AF per year. These new supplies are expected to reduce the reliance on MWD water by at least half. Other programs that will enhance the development of additional local water supplies include groundwater, recycled water, surface water, and conservation projects. Some projects will be developed by CWA, while others will be managed by other agencies with partial financial support from CWA.

The City has completed a number of planning efforts to identify potential projects that would increase the available water supply under the direct control of the City. These planning efforts include:

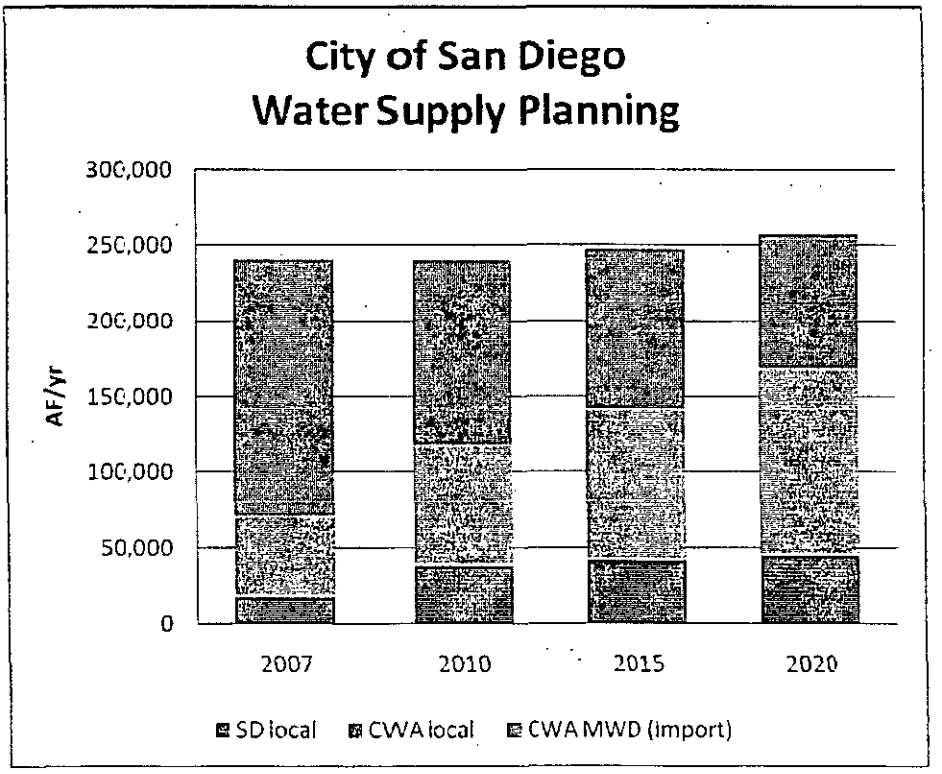
- 1997 Strategic Plan for Water Supply
- 2002 Long Range Water Resources Plan
- 2004 Strategic Business Plan
- 2005 Urban Water Management Plan
- 2007 Reclaimed Water Master Plan
- Drought Ordinance
- Water Facilities Master Plan (beginning Fall 2008 for the post FY2013 CIP)

The Urban Water Management Plan is developed and updated on a five-year cycle in accordance with the requirements of the State's Urban Water Management Planning Act. The City has prepared plans in 1985, 1990, 1995, 2000, and 2005. The plan demonstrates water reliability for the coming 25-year period. The plan is prepared in conjunction with information from MWD and CWA, the primary water wholesalers

for the City. It considers population factors, demand projections, emergency planning and response requirements, water quality, water recycling, and drought planning.

Along with the development of water management strategies, these planning efforts have resulted in identification of a number of potential projects that could enhance the City's water supply portfolio. These projects include investigation of groundwater recharge/storage projects, brackish water desalination projects, recycled water production and distribution projects, and enhanced conservation programs. In November 2007, the City Council approved the San Pasqual Ground Water Management Plan, under which the City will identify the viability of groundwater basin conjunctive use and storage, with state and federal funding support.

Figure 3-1 below is based upon supply planning data from both the CWA and the City, illustrating how planned programs and projects will reduce the City's reliance on imported water from MWD. The figure represents all water usage including potable and recycled, as well as water losses. Based upon reports from the Water Department and from CWA, Water Department reliance on MWD imported water is projected to reduce from the current levels of about 90 percent to less than 40 percent, provided that planned local CWA and Water Department projects are implemented.



Definitions:

SD Local – surface water, recycled water and groundwater
CWA Local – IID water transfers, canal lining transfers,
CWA MWD (Import) – Water sold to CWA by MWD (includes water from Bay-Delta and Colorado River)

Figure 3-1
City of San Diego Water Supply Planning

3.3.2 Water Conservation

In addition to the conservation-oriented inclining block water rate structure in use for residential customers, the City and the CWA have active water conservation programs. These programs provide customer education and financial incentives for the installation of water saving devises such as low flow toilets, water efficient clothes washers and weather-based sprinkler controllers for irrigating large landscapes, parks and green belts. Many of these programs provide permanent long-term benefits. In fact, water usage within the City is approximately the same today as it was in 1992, despite a 21% increase in population.

In response to recent water supply shortages announced by MWD and CWA, the City has recently declared a Stage 1 Voluntary Compliance Water Watch that asks citizens to voluntarily reduce water use. Programs such as the "Twenty-gallon Challenge" provide information to the public on ways residential water use can be reduced to help the area manage current and potential future additional reductions in the delivery of imported water. The City is currently updating a drought ordinance that outlines voluntary and mandatory actions that would be taken should further water supply restrictions occur.

3.3.3 Recycled Water

The Water Department distributes recycled water from two City reclamation plants (operated by Metropolitan Wastewater Department), and currently serves approximately 400 retail and 3 wholesale customers. Approximately 8,000 AF of recycled water was delivered in FY 07. A recycled water master plan was completed in 2007 that is the basis for recycled water distribution projects that are included in the CIP.

3.3.4 Facilities Planning

The Department's capital project planning has been based upon a combination of improvements based upon regulatory requirements and system requirements as defined in various strategic planning efforts. The Department has initiated efforts to begin an update to its Water Facilities Master Plan in the fall of 2008 that will outline the capital program and projects that will be needed during the FY10 through FY30 planning period.

3.3.5 Capital Project Execution

Capital Project Planning and Preliminary Design

The Water Department is responsible for capital project planning, prioritization, financing, program financial management and preliminary design. Section 3.6 discusses the project prioritization process and details the current capital program projects. Following the completion of preliminary design, project implementation is transferred to the City Engineering and Capital Projects Department. Services are provided via an annual service agreement, with all costs being paid from Water Department budgets.

Capital Project Design, Bid and Construction

The mayor's office has instituted an organizational review process referred to as Business Process Reengineering ("BPR"), which has been used to improve efficiencies, reduce the cost of City government and to enhance the services offered to City residents. In July 2006, a study related to the provision of engineering services to City departments (including the water and wastewater utilities) was initiated to assess and implement a revised organizational structure that would consolidate these services under a single operational unit. This study was completed in April 2007; implementation of the organizational change began during the FY08 budget planning.

The new Engineering and Capital Projects Department ("E&CP") has been structured to be an effective, streamlined, and centralized service department. It manages a varying workload by adjusting to the ebb and flow of capital project demands among all City departments with less disruption than had previously occurred within individual departments. In addition, the E&CP is designed along the following key recommendations of the BPR:

- Consolidate all CIP design and construction functions so that projects are delivered in accordance with annual execution plans
- Implement a uniform and objective ranking system to prioritize all CIP projects
- Improve coordination of projects within the right of way
- Enhance the City's asset management systems
- Operate E&CP as a matrix organization
- Enhance communications and coordinate by placing all staff within one location

In recognition of some of the unique needs of the utilities, the Water and Wastewater departments have retained responsibility for CIP development and project planning, program management, project financing, budget control and compliance with the rate case plan and revenue program. In addition, O&M engineering responsibilities have remained within the Water and Wastewater departments. As a result of this consolidation of the City engineering operations, 25 positions were transferred from the Water Department to the E&CP department, which has a total of 527 positions. Of that number, approximately 140 positions are identified as assigned to the water and wastewater service sections. In addition, the department provides environmental and permitting services for the City's capital program. Services that require a specific expertise, such as treatment plant and large diameter pipeline design, utilize outside contractors who will be managed by this department.

Each year the E&CP and Water Department develop a formal Service Level Agreement that defines the roles and responsibilities of each party, and establishes schedules and timelines for project implementation, communication protocols,

performance measures and dispute resolution. As the E&CP was created recently, the performance of its service relationship with the Water Department has not yet been reviewed. However, given the number of defined water project positions, and E&CP's capability to shift work responsibilities within the large pool of engineers and construction specialists, the department has the ability to efficiently perform its prescribed services to the Water Department.

3.4 Regulatory Issues

3.4.1 Current Regulatory Issues

The City's water treatment and delivery system falls under federal, state, county, and municipal regulations. The general types of regulations which may be applied to capital project implementation and other department operations include those listed in Table 3-1.

Table 3-1
General Statutes, Laws, and Regulations Guiding the Water Department

Locality	Statute, Law, or Regulation
Federal	Energy Policy Act *Clean Air Act* Endangered Species Act National Environmental Policy Act National Historic Preservation Act Federal Insecticide, Fungicide, Rodenticide Act National Fire Protection Act1 Uniform Fire Code Toxic Substances Control Act Uniform Building Code Clean Water Act
State	California Prop 65 Emergency Planning Community Right to Know Act Hazardous Materials / Wastes Pesticides Pollution Prevention Above and Underground Fuel Storage Integrated Waste Management Act Safe Drinking Water Act State Drinking Water Standard Hydrostatic and Potable Water Discharge Permit Storm Water Code Compliance CARB Title 13 California Environmental Quality Act
County	Clean Air Act – local enforcement Recreational Use Permits in Domestic Supply Reservoirs

Table 3-1 (cont.) General Statutes, Laws, and Regulations Guiding the Water Department	
Locality	**Statute, Law, or Regulation**
Municipality	City of San Diego General Plan & Progress Guide City of San Diego Historical Resources Register Coastal Zone Development Permit Environmental Quality Ordinance Site Development Permit Hazardous Material Disclosure Noise Control Watershed Protection Energy Conservation Medical Waste Recycling of Construction Debris Storm Water Code Compliance

The Operations Division maintains a detailed inventory of regulations and requirements that relate to all aspects of the water utility operations. This data provides information on statutes, regulating agency, areas of impact (air, water, hazardous materials, release impacts, etc.), the functional areas that the regulation may effect, and the implementation documentation within the department. This information is used to monitor reporting or permitting activities as they are required during facility planning and operation. Compliance with regulations related to capital project design and construction is monitored by both Water Department and E&CP staff.

Other than the Department's ongoing work with the CDPH, no other outstanding regulatory issues were identified during this review.

The US EPA and State of California adopted new rulings related to surface water treatment and water quality in the late 1980's. In response to these regulatory requirements and to provide water quality management for the City water supplies, the Water Department initiated a Drinking Water Quality Improvement Program in the late 1980's. This program and its related studies led to the development of various capital projects at the water treatment facilities to optimize operations and to provide ozonation as a primary disinfectant system.

Since 1994, the Department has been working closely with the CDPH to ensure that the water treatment and distribution systems achieve compliance with CDPH requirements. Table 3-2 lists outstanding CDPH compliance order issues and the projects the Department is pursuing to address those issues. We have opined on whether or not the projects use proven and reliable technology and would adequately address the CDPH's issues.

The proposed CIP includes 20 projects that are planned to respond to regulatory concerns or requirements. These projects have a total cost of approximately $480 million over the five year capital planning period.

3.4.2 Potential Future Regulatory Issues

In the future there may be additional regulatory requirements related to other emerging contaminants, such as pharmaceuticals, and their potential impact on drinking water quality. The treatment processes being implemented at the City treatment facilities have the potential to provide effective treatment for many of these issues. Therefore, based upon the City's established working relationship with CDPH, the implementation of treatment plant improvements and the established regulatory monitoring program in the operations division, it appears that the City has practices in place that can properly respond to potential future regulatory issues.

Table 3-2
CDPH Compliance Related Projects

Compliance Order Issue	Project Name	Work Description	Proven & Adequate?	Compliance Status
Rancho Bernardo CCR: reservoir rehabilitation. Start by July 31, 2007 and complete by December 31, 2008	Rancho Bernardo Reservoir Upgrade	The project calls for the rehabilitation of the 10-million gallon, trapezoidal-shaped concrete reservoir. Work will include improvements of the beam connection, repairs of the roof slab and columns and a seismic retrofitting to bring the reservoir up to code compliance mandate by Water Department and State Department of Health Service standards.	Yes	Under Construction
Optimize Treatment of all WTP: effluent turbidity goal of 0.1 NTU	Upgrade projects at Alvarado, Miramar and Otay WTPs	See project specific descriptions.	Yes	See project descriptions
Water main replacement: award contracts annually for construction of at least 10 miles per year	AA Water Main Replacements	Annual allocation for the replacement of water mains throughout the City. The existing cast-iron system is either approaching or has exceeded its expected life of 40 years. As of 2008, breaks are occurring at the rate of approximately 100 annually.	Yes	On-going program in place, approximately $40 million planned each year in CIP
Rancho Penasquitos Pump Station (formerly called Rancho Bernardo). Begin construction by Jan 31, 2008 and complete construction by Jan 31, 2010.	Rancho Penasquitos Pump Station	Project calls for the design and construction of a new pump station and a new Del Mar pressure reducing station near the site of the existing stations. The new station will house 5 new vertical pumps each rated at 6000gpm and an additional pump can for future expansion. The Del Mar pressure reducing station will be replaced with a new facility.	Yes	Under Construction FY2009-FYy2010
Miramar WTP Contract B (construction of three flocculation and sedimentation basis, demolition of flocculation and sedimentation base no. 3 and rehabilitation of the operations building). Start construction by Mar 31, 2008 and complete by Mar 31, 2010.	Miramar WTP Contract B - Floc/Sed Basin	This project will expand the plant capacity from 140 mgd to 215 mgd to meet water demands through 2030. The construction scope of work will involve: Construction of 4 new Flocculation and Sedimentation basins 5, 6, 7 and 8 inclusive of associated piping - Demolition of the twelve existing filters - Demolition of the existing backwash water tank and associated piping - Demolition of the existing Flocculation and Sedimentation basins - Construction of 60 inch influent pipelines to New Flocculation Basins - Construction of 108 inch & 120 inch settled water pipelines	Yes	Under Construction FY2009-FY2010

Table 3-2
CDPH Compliance Related Projects

Compliance Order Issue	Project Name	Work Description	Proven & Adequate?	Compliance Status
Miramar WTP Contract C (Ozone equipment). Start construction by June 30, 2008 and end construction by Mar 31, 2010.	Miramar WTP Contract C - Ozone Equip/Install	This project consists of installation of Ozone equipment and Liquid Oxygen delivery and storage facilities. Three Ozone generators will be provided to generate ozone for supply and distribution of ozonated feed gas to two pre-ozone and three settled water ozone contactors. Once this project is completed, ozone will replace chlorine as the primary disinfectant.	Yes	Under Construction FY2008-FY2010
Alvarado WTP Flocculation and Sedimentation Basins I & II - rehabilitation. Start construction by Dec 31, 2010 and complete by June 30, 2012.	Alvarado WTP Ph 3 Rehab Floc/Sed Basins	This project consists of rehabilitation of Flocculation/Sedimentation Basins 1 & 2, as well as installation of Ozone pipeline from Ozone Building through the exiting basins to the existing filter.	Yes	In-Design Construction to begin FY2011
Otay 2nd Pipeline I-15 to 54th street. Start construction by Mar 31, 2008 and complete by Mar 31, 2010.	Otay 2nd Pipeline - Cast Iron Replacement Phase	This project includes the installation of approximately 1.3 miles of new 42-inch welded steel pipe in 54th Street between El Cajon Blvd and Chollas Station Road which will provide a means to bypass 3.5 miles of the 36-inch cast iron pipeline, located west of 54th Street, abandonment of 1200 feet of existing 36-inch cast iron pipe. This segment includes flow meters, pressure control valves, and connections to the Trojan, Otay I and II and Mid City Pipelines. Also, this project consists of replacement of approximately 3000 feet of existing cast iron pipe in 54th Street with new 16-inch PVC distribution pipelines that will maintain the City's reliable source of potable water.	Yes	Under Construction FY2009-FY2010
Alvarado WTP Ozone equipment. Start construction by Jun 30, 2008 and complete by Dec 31, 2010.	Avarado WTP Ph 4 Ozone	Construction of ozone disinfection and pumping facilities to meet new Federal Safe Drinking Water requirements and State of California Department of Health Services compliance order, and the associated process changes to make ozone the primary water disinfectant and chlorine secondary.	Yes	Under Construction FY2009-FY2011
Otay WTP Phases I and II (construction of new flocculation and sedimentation basins, make improvements to filtration facilities, and install chlorine dioxide facilities). Start by Sept 30, 2008 and complete by Dec 31, 2010.	Otay WTP Upgrade Phase 1	The Otay WTP Upgrades Phase 1 project will construct a new flocculation and sedimentation basin and make improvements to the sixteen existing filters. The filters improvements include granular activated carbon (GAC) filtration media and providing a pumped backwash system, a filter to waste system, replacing the filter under drains and increasing the media depth.	Yes	Under Construction FY2009-FY2011

Table 3-2
CDPH Compliance Related Projects

Compliance Order Issue	Project Name	Work Description	Proven & Adequate?	Compliance Status
	Otay WTP Upgrade Phase 2	The Phase 2 upgrades to the Otay WTP include construction of a chlorine dioxide shaft contactor, ClO2 generation system, sodium chlorite tank, ferrous chloride (FeCl2) tanks and feed system, powder activated carbon (PAC) facilities, reservoir circulator units, yard piping, electrical support facilities, instrumentation and controls systems, and associated site work.	Yes	Under Construction FY2009-FY2011

3.5 Current Water System Facilities

The City's service area covers over 400 square miles, which includes 342 square miles in the City, and serves approximately 1.3 million customers. To assess the current condition of the water system, we performed a site evaluation of several of its key facilities. The site evaluations involved walking through the sites and visually observing the physical condition of several water treatment plants, water pump stations, and reservoirs.

The City owns and operates three main water treatment plants, 9 raw water reservoirs, 32 treated water reservoirs, and 49 pumping stations. Our inspections were limited to sites best representing the overall condition of the City's facilities, and a summary of the City's facilities is provided below. A rating system of 1 to 3 was applied to each facility visited. In conclusion, the overall ratings (detailed below) were: Treatment Plants -- 3.0; Pump Stations -- 2.5; and Reservoirs/Standpipes -- 2.0.

3.5.1 Rating System Definition

A grading system was used to evaluate the water facilities. This approach and methodology result in standardized definitions of condition regardless of the facility type (treatment plant, pump station or reservoir).

During the assessment we established a condition grade for each of the sites inspected. The grading system for the facilities is as follows:

Good Rating -- 3

A rating of 3 implied the facility was in operation, in good working order, with all or most of the equipment associated with the facility in good mechanical condition. A 3 rating was given if all maintenance was being performed in accordance with manufacturer's recommendations, and that backup equipment, where provided, was in good condition and ready for operation as required.

Fair Rating -- 2

A rating of 2 implied the facility/equipment was in operation and in fair mechanical condition. A rating of 2 was given if the equipment was nearing the end of its useful life, and in need of repair or replacement.

Poor/Out of Operation Rating – 1

A rating of 1 implied the facility/equipment was in poor condition and/or out of service altogether.

3.5.2 Water Treatment Facilities

The City has three main water treatment plants: Alvarado, Miramar and Otay: Table 3-3 summarizes the capacity and demands of these treatment facilities. In general all three treatment facilities are in good working order.

Table 3-3 Capacity and Demand of the City's Water Treatment Plants						
Water Treatment Plant	Original Design Capacity (mgd)	Current Rated Capacity (mgd)	Future Rated Capacity (mgd) (1)	Current Average Demand (mgd)	Current Peak/Max Demand (mgd)	Condition Rating
Alvarado	66	150	200	89.5	116.8	3-Good
Miramar	100	140	215	88.1	135.3	3-Good
Otay	40	34.2	40	20.7	30.5	3-Good
Total	**206**	**324.2**	**455**	**198.3**	**282.6**	
1)Source: Water Department						

Alvarado Water Treatment Plant

The Alvarado Water Treatment Plant (WTP) began operation in January 1951 with a capacity 66 mgd. It is located adjacent to Lake Murray near the City's border with La Mesa. Plant capacity is 150 mgd and will be increased to 200 mgd by completion of the Upgrade /Expansion Project.

The Alvarado WTP is rated at 3. The plant is currently under construction to include additional treatment tanks and ozonation.

While some of the facility is older, including the flocculation tanks and filter control consoles (upgraded, but still housed in the original cabinets), overall the facility is very clean and well maintained. A total of five maintenance staff is responsible for maintaining the facility, with I&C and HVAC maintenance performed by others. This is a relatively small maintenance crew, so staffing may be inadequate for such a large facility. Once the construction project is completed, it is recommended that a staffing study be conducted to determine if additional maintenance staff is warranted. Based on discussion with plant operators, there seems to be adequate operations staff.

A computerized maintenance management system ("CMMS") is being implemented at Alvarado, but work orders continue to be manually generated. Maintenance staff perform daily walkthroughs of the facility, with a daily meeting held in the morning to review the previous day's operation's log. While this seems to be effective, as the facility expands, CMMS should be fully implemented. Currently, estimation of equipment run time is based on calendar days. In contrast, elapsed time meters are more effective tools for accurate scheduling of preventative maintenance.

In summary, the Alvarado WTP is in very good condition, is maintained well, and is rated at 3.

Miramar Water Treatment Plant

The Miramar WTP began operation in 1962. The WTP is located in the Scripps Miramar Ranch community adjacent to Miramar Reservoir, and provides drinking

water to an estimated 500,000 customers. The WTP's current capacity is 140 mgd and will be increased to 215 mgd by completion of the Miramar Upgrade and Expansion Project.

The WTP is staffed with four maintenance staff plus a supervisor. The facility is currently under construction to expand its capabilities to provide ozonation disinfection treatment. The majority of the old facilities have been demolished and replaced. New facilities include a new administration building, filters and flocculation/sedimentation basins. The completion of the current construction contract will have replaced everything except the distribution pump station and clear wells. The facility is well maintained and in good working condition and has been in continuous operation throughout the construction period. Construction on the current expansion-upgrade project will be complete in 2011.

CDM staff is on site at the Miramar WTP providing design services during construction Based on our first-hand knowledge of the plant condition and operations, the condition of the facility is rated at 3.

Otay Water Treatment Plant

The Otay WTP supplies one of the City's three major water service areas, providing up to 34 mgd of potable water to customers primarily in the southern reaches of the City. The plant receives raw water from the Morena, Barrett and Lower Otay Reservoirs.

This facility is well-maintained and operated, but shows some wear with certain areas in need of painting. It is rated at 40 mgd, but regulated to 32.4 mgd. It has 16 existing filters, with construction underway to add an additional settling basin and to convert from chlorine to chlorine dioxide disinfection. Other capital improvement projects are scheduled to replace valves in the filter gallery and replace the ferric chloride tanks.

A total of four maintenance staff plus a supervisor are responsible for maintaining the Otay WTP, which seems to be adequate. Similar to the Alvarado WTP, the maintenance staff does not fully utilize the CMMS program. According to discussions with the Maintenance Supervisor, most of the equipment maintenance is performed on a repair basis. Five operators are assigned to the Otay facility, working on rotating shifts. This seems to be an adequate number of operations staff for the plant.

The Otay WTP condition is rated at 3.

3.5.3 Water Storage Facilities

The City's Water System includes 9 raw water reservoirs with a total capacity of 415,936 AF and 32 treated water reservoirs/standpipes, with 29 currently in operation. Three treated water reservoirs/standpipes were visited, and 2 additional standpipes were discussed with City staff to assess the condition of the reservoirs.

We did not have the opportunity to assess the level of staffing for the reservoir or hydraulics crews. According to City staff, there are two crews of 2 to 3 people, each responsible for checking and maintain the reservoir and standpipes. There is a four-person hydraulics crew responsible for checking and maintaining the pressure reducing stations and the altitude valves. Table 3-4 summarizes the capacity and condition of these storage facilities.

Table 3-4
Water Storage Facilities Inspected

Facility Name	Capacity MG	Rating
College Ranch Standpipe	1.5	3-Good
La Jolla Country Club Reservoir	0.5	2-Fair
San Carlos Reservoir	5.0	1-Poor (out of service)
Paradise Mesa Standpipe	2.53	3-Good
Redwood Village Standpipe	2.0	2-Fair

College Ranch Standpipe

The College Ranch Standpipe is rated at 3. The standpipe is currently in service, and in good operating condition.

The standpipe altitude valve is in good condition. The cathodic protection is also well maintained and in good working order. The standpipe has been drained and cleaned according to the City's inspection schedule. During routine inspection, the tank liners are inspected and coated as necessary. Due to low demand in this area, some operational problems occur due to stagnant water in the standpipe. Chlorine is routinely fed to the standpipe to mitigate this problem.

La Jolla Country Club Reservoir

The La Jolla Country Club Reservoir is rated at 2. The reservoir is old and the roof and liner need replacing. The overall condition of the reservoir is fair. Water quality issues require the reservoir to be chlorinated.

San Carlos Reservoir

The San Carlos Reservoir is rated at 1, as it is leaking and out of service. The reservoir was emptied, cleaned, and inspected for leakage. Upon refilling the reservoir, it was discovered to still be leaking, and has not been placed back into service. During the visit, evidence of leaking was apparent, and a bee infestation exists at the base of the reservoir. A project to repair this reservoir is included within the current CIP.

Paradise Mesa and Redwood Village Standpipes

We did not visit the Paradise Mesa Standpipe or the Redwood Village Standpipe, but discussed the condition of them with a City representative. According to the City representative, the Paradise Mesa Standpipe is in service, and in good working order. The altitude valve and cathodic protection are in good condition. Therefore, the

Paradise Mesa Standpipe is rated at 3. The City representative indicated that the Redwood Village Standpipe has some operational problems related to elevation grade variability in the zone which can cause pressure fluctuations. This facility requires some additional monitoring and managing by maintenance staff and is therefore rated at 2.

3.5.4 Pump Stations

Forty-nine pump stations deliver water throughout the City's system. The pump stations are divided into four pressure zone areas, where each area is assigned pump station crews to check the stations on a regular basis. As a general statement, some of the 49 pump stations are located at grade, and vandalism has been a recurring problem. To provide continuous operation during power outages, 20 pump stations have permanent emergency generators and an additional 15 mobile/portable generators are available for use at other pump stations, as needed.

We did not have the opportunity to assess the level of staffing for the pump station crews. According to Water Department staff, each pressure zone has two crews of four people that are responsible for checking and maintaining the pump stations. We visited four stations in one pressure zone area. According to the City, these stations fairly represented all pump stations within the four zones. Table 3-5 summarizes the capacity and condition of these pump station facilities.

Table 3-5
Water System Pump Stations

Facility Name	Max Capacity MGD	Rating
Climax Pump Station	6.5	2-Fair
College Ranch Hydro Pneumatic Pump Station	2.5	2.5-Fair Plus
Waring Road Pump Station	29.0	3-Good
Eagle Ridge Pump Station	3.4	3-Good

Climax Pump Station

The Climax Pump Station is rated at 2. The pump station is located in a residential area, and equipped with four VFD-driven pumps. The VFDs are older and "showing some wear." The piping is also leaking some water. The station itself is fairly cramped, and equipment access is difficult. The facility does not have an emergency standby generator. The station is located below grade, and there are no vandalism or security issues.

College Ranch Hydro Pneumatic Pump Station

The College Ranch Hydro Pneumatic Pump Station is rated at 2.5. Although not a typical water pump station, it is considered part of the 49 pump station network. One pump pressurizes a hydro pneumatic tank at the College Ranch Standpipe. The facility does not have an emergency standby generator. The below grade station is

maintained adequately and is physically located within the fenced area of the College Ranch Standpipe. This station has one pump. Typical of all the pump stations visited, intrusion alarms are provided on the access doors and hatchways.

Waring Road Pump Station

The Waring Road Pump Station is rated at 3. The station is four years old and is in new condition. Five 200 horsepower vertical turbine pumps are manually operated remotely by the Alvarado WTP operators through the SCADA system. Due to low demand in the area, the pumps are operated intermittently, based on pressure. A trailer-mounted emergency standby generator is located onsite. Construction is currently underway to permanently tie in the generator to the pump station for automatic switchover operation. This station has been well maintained.

Eagle Ridge Pump Station

The Eagle Ridge Pump Station is rated at 3. The site is equipped with two hydrants; one for hooking up to the suction side of the reservoir, and one for the discharge side, providing redundancy to the system. The pump station is equipped with a total of four pumps; two large and two small pumps. The facility does not have an emergency standby generator. The pump station site is well-maintained.

3.6 Operations and Maintenance Activities

A review of budget and planning documents as well as interview information was used to prepare this evaluation of the Water Department operations and maintenance programs.

3.6.1 Staffing and Operations Plan

The Water Department Operations Division operates and maintains the Water System. This Division is currently authorized to have 460 positions. The division is divided into six major groupings to operate, manage and maintain the system facilities. A review of current operations and the planned CIP does not indicate that a significant increase in positions will be needed as projects are completed. The workforce is divided into the following units and sub-units:

- Public Information
- Administrative Support
- Safety, Security and Emergency Response Program
- Water Operations and Engineering
  - Production Engineering
  - Facility Information Management
  - Distribution System Operations/Optimization

- Optimization
- Distribution Operations
- Distribution Engineering
- Corrosion Engineering

- Water Production
  - Treatment Plants
  - Water Quality Laboratory

- Water Construction and Maintenance
  - North Council Districts 1,5,6,7
  - South Council Districts 2,3,4,8
  - Emergency Services

- Lakes and Recreation/ Reservoir Management

The Operations Division has ISO 14001 certification (International Organization for Standardization), which is a program that establishes a standard for performance that is designed to function on a plan, do, check, act systems approach. All members of the organization participate in the development and operation of this interactive system with the following goals:

- Cost Savings
- Reduced risk to the environment and the employee
- Increased operational efficiency
- Positive external relations and public image
- Improved communications

In addition, the Operations Division operates under a "Bid to Goal" program that establishes performance standards for employees that are set and reviewed monthly and annually for performance/pay reviews.

3.6.2 Maintenance Program

Interviews with the Operations Division maintenance program staff were performed to review the maintenance methodology and practices in use. Key areas reviewed

were employee training and supervision, work order systems and documentation, and work planning and execution.

Training

The division has established a structured training program for all new employees. This program, the Water Academy, provides three weeks of training related to all the City systems and safety programs. In addition, the City provides ongoing classes that lead to water system operator certifications and the City training program is certified to grant continuing education credits. Programs are provided by both internal and external trainers, depending on the particular topic and skills needed. Training programs cover topics such as legal requirements, break repair practices, equipment operation, customer service issues, and ongoing safety practices. Staff members who pursue additional certifications receive compensation recognizing the level achieved even if it is beyond their position requirements. Generally, the department supervisory staff is promoted from within and supervisors take an active role in provision of regular training sessions.

Work Order Management

The operations maintenance staff is divided into teams assigned to specific zones within the City and at the major treatment facility sites. Maintenance work hours are linked to work orders on an average of about 90% of the time. Work orders are linked to a specific asset and are managed by the supervisor of each zone/facility team. Work orders are issued to work crews on a weekly or biweekly basis, depending on the supervisor. Emergency work orders are issued on a daily basis as they occur. According to operations staff, most work orders are related to planned maintenance and about 75% are completed within four weeks from the date requested.

The system is a combination of electronic and manually managed documents, with the work orders generated electronically, the documentation completed manually by field workers and then input by data processing operators on a daily basis. Consideration has been given to a fully automated system, but concerns related to equipment requirements, field conditions and worker computer skills has led to a preference for this hybrid system. There is no automated link between the time reporting and work orders, and the individual supervisors are responsible for auditing time and materials costs for work orders on an informal basis. Analysis of work order maintenance data is not regularly used to establish a predictive maintenance program.

Maintenance Planning

The water distribution system utilizes system redundancy to provide service reliability and emergency response. The system is mapped using GIS and the department engineering staff provides support for the implementation of maintenance/repair projects. Operations management reported that the system currently experiences about 100 breaks per year over the 3,420 miles of pipeline. The

Department's continuing cast iron main replacement program will help to prevent breaks related to aging and deteriorated pipeline sections.

3.7 Capital Improvement Program

The general objectives of the Water Department's CIP are to provide the facilities necessary to meet federal and state requirements, maintain the integrity of the system, and provided satisfactory service and performance to customers at a reasonable cost. To accomplish these objectives, the Water Department must have sufficient operating revenues and adequate funding for CIP projects.

The Water Department reviews the CIP on an ongoing basis to prioritize and plan for program implementation. In addition to projects that are driven by regulatory issues, several planning documents and studies have been developed to define potable and non-potable water demands, alternative supply options, and the infrastructure requirements related to these issues. These plans and studies have identified a number of potential projects for further evaluation at the master planning level. Additionally, the City has operational and short- to mid-term reliability projects compiled in "project summary sheets" as part of the CIP. Master Plans to determine long-term facility needs have been developed independently for the Miramar and Alvarado Service Areas. The City has established five-year periods for the development and integration of the information needed to establish a comprehensive, practical, and functional Master Plan, in part by utilizing the facility plans described above. The City is developing a long-range CIP with an outlook that will extend past the 2013 planning horizon.

The City has recently developed prioritization policies for CIP projects. In May 2008, the City Council approved a policy to establish an objective process for ranking CIP projects to have a basis for choosing the most compelling projects for implementation. The following prioritization factors are listed in order of importance:

1. Health and Safety Effects
2. Regulatory or Mandated Requirements
3. Implication of Deferring the Project
4. Annual Recurring Cost or Increased Longevity of the Capital Asset
5. Community Investment
6. Ease of Implementation
7. Project Cost and Grant Funding Opportunity
8. Project Readiness

3.7.1 Master Planned Facilities

Appendix A, Table A-1 presents the list of projects in the proposed CIP as of September 2008. The projects are scheduled for design and construction between FY09 and FY13; the table identifies the justification for each project and estimated then-current cost by fiscal year, using an inflation allowance of 4 percent. Some of the multi-year projects have already incurred considerable costs in the years before FY09, and other projects include construction expenditures after FY13. Table A-2 provides descriptions of each project.

3.7.2 Capital Program Implementation

An accurate construction cost estimate is essential to successful project management, fiscal budgeting, and project implementation. The Engineering and Capital Projects Department's Standard Operating Procedure (SOP) provides general guidelines for the preparation of reliable project construction cost estimates. The SOP is included in Appendix B. The development of the construction cost estimates begins with the Water Department at a planning level (10 percent design stage). The Engineering Department further refines the cost estimate at 30, 75, 90 and 100 percent design stages. Cost estimates are also updated if a project is delayed for more than 6 months, or if there are significant changes in the design. The City typically hires outside consultants for large projects. The City's cost estimating guidelines are provided to the consultant, but the consultant is ultimately responsible for their own methods.

The following are the general guidelines for preparation of construction cost estimates as stated in the SOP:

- Preparation of the Engineer's Estimate and associated construction costs
- Types of construction cost estimates
- Construction cost estimating approaches
- Available cost estimating resources
- Ranges of construction administration and contingency costs
- Cost estimate submittals and expected accuracies at various stages of design
- The roles and responsibilities of the participants in the cost estimating process

Table 3-6 lists the elements of a project's costs as identified by the SOP. The range in percentage values listed reflects the varying complexities of a project as well as the varying site conditions that may be encountered.

Table 3-6 Elements of Project Costs		
Project Phase and Components	**Range of Project Cost Share**	
A – Project Design Costs	20% to 40%	Of Total Budget*
1 – Administration		
2 - Engineering		
B – Project Construction Costs	60% to 80%	Of Total Budget*
1 – Engineer's Est (Const Contract)	30% to 60%	Of Total Budget*
a – Bid Item Quantities		
b – Mobilization	5% to 10% (1)	Of Construction
c – Traffic Control	5% to 10% (2,3)	Of Construction
d – Water Pollution Control	2% to 5% (1)	Of Construction
e – Bonds	2.5% (4)	Of Construction
f – Field Orders	2.5% to 10% (3)	Of Construction
2 – Contingencies	10% to 15%	Of Construction
3– Const Admin – Field Engineering	10% to 15%	Of Construction
**Total Project Budget (costs) = (Design Costs) + (Construction Costs)*		
(1) Depending on location (2) Depending on ADT (3) Depending on project complexity (4) Per specification		
Source: City of San Diego Standard Operating Procedure, CIP Construction Cost Estimates, Table 1		

The cost estimate at the 10 percent design stage is considered a conceptual level rough estimate. The cost estimate at the 30 percent design stage is based on quantities and unit process models further refined by investigation or revised assumptions from the design criteria, site layout, soils reports and completed design drawings. The cost estimate at the 75 percent design stage includes unit prices associated with environmental review, mitigation requirements, and discretionary permits. The cost estimate at the 90 percent design stage is updated with the most recent bidding unit prices. The cost estimate at the 100 percent design stage serves as the final project cost plan.

The following is the expected accuracy of the actual cost of construction for each design stage:

- 30 percent design stage: +30 to -15 percent
- 75 percent design stage: +20 to -10 percent
- 90 percent design stage: +10 to -10 percent

The City's approach for estimating project construction costs is consistent with industry standards and professional practices. Based on our review, we find the cost estimates presented in the CIP and the proposed schedule for completion of the projects to be reasonable.

Section 4
Water System Financing

The purpose of this section is to evaluate the financial feasibility of the proposed Water Department revenue bonds to support the funding of the City's proposed CIP of $724 million through FY 13. This evaluation is based on proforma sources and uses of funds cashflows for the Water Department Fund and evaluation of debt service coverage ratios. The analysis was made to confirm that the utility has sufficient net operating revenues to adequately fund the capital program and projected debt service with appropriate financial safety margins. The funding plan uses the proceeds of the 2009 Series A and B Bonds, and proposed additional bond sales over a projected five years.

4.1 Capital Improvement Program

The Water Department has a capital improvement program (CIP) that identifies the construction schedule and estimated costs of projects prioritized for completion. The Water Department reviews and updates its CIP annually. A detailed water system analysis is conducted periodically to identify and reprioritize needed capital improvements. The project costs and other details are modified annually to reflect current needs, priorities and costs. The Department Strategic Plan includes capital projects to remediate existing deficiencies and provide additional capacity in the City's water facilities. A long-term CIP evaluation that extends project definitions through 2020 is currently being prepared.

Table 4-1 presents a summary of the projected five-year CIP for FY 09 through FY 13, as provided by Water Department staff. The annual CIP varies between $113 and $178 million per year, with future costs based on a nominal inflationary escalation of 4 percent, to then-current dollars. For a detailed list of projects, see Table A-1 in Appendix A.

Table 4-1
Proposed Major Capital Improvement Program (Inflated)

Line No	Project Numbers (a)	Description	Fiscal Year Ending June 30 2009	2010	2011	2012	2013	Total
1	1 - 12	Water Treatment Plants	$86,756,020	$83,881,204	$31,310,409	$1,639,389	$3,905,061	$207,492,083
2	13 - 37	Pipelines	$57,705,209	$48,074,621	$53,410,139	$61,430,309	$59,022,991	$279,643,269
3	38 - 45	Pump Station	$9,550,000	$3,840,792	$831,375	$2,438,728	$3,523,976	$20,184,872
4	46 - 61	Storage Facility	$6,794,422	$942,589	$1,522,669	$4,208,908	$10,983,215	$24,451,803
5	62 - 69	Reclaimed Pipelines	$3,104,606	$7,106,101	$7,414,401	$2,980,224	$1,000,000	$21,605,332
6	70 - 74	Groundwater	$2,019,816	$7,643,634	$18,528,908	$20,127,520	$1,209,935	$49,529,813
7	75 - 77	Security	$3,796,050	$10,109,000	$7,592,776	$326,295	$0	$21,824,121
8	78 - 87	Miscellaneous	$7,897,506	$7,800,000	$21,178,596	$29,023,958	$33,762,636	$99,662,696
9		Total	$177,623,629	$169,397,941	$141,789,273	$122,175,332	$113,407,814	$724,393,989

(a) Project Numbers coincide with the project numbers listed in Appendix A, Table A-1.

All project costs are divided between facility upgrades (including existing facility rehabilitation and replacement) and expansion of capacity for the benefit of new customers. Municipal utility facilities are built with capacity to serve a decade or more

of projected demands, in order to reduce the overall unit cost of facilities to all customers. The City maintains a capital facility connection fee schedule for assessing new development with the cost of system-wide capacity so that "growth pays for itself" without burdening existing customers. However, the up-front expenditures on new facility construction always precedes the collection of connection fees, so the proposed bonds are sized to fund the total CIP expenditures. The anticipated connection fee proceeds of approximately $14 million per year will be used to offset future Water Department capital expenditures, including the expansion-related portion of debt service. As such, the connection fee proceeds are recognized as non-operating revenue to the operating fund, and can be used for debt service and/or transferred to the capital program for "pay-go" project expenditures.

Detailed water system analyses are conducted periodically to identify and prioritize needed capital improvements. As a result, the finalized CIP schedule for FY 09 - 13 may differ slightly from Table 4-1 shown below for individual projects, but the overall difference in average annual CIP expenditures will be immaterial.

Some of the projects shown in Table 4-1 started before FY 09, and some projects will extend beyond FY 14. The proposed five-year CIP for FY 09 - 13 is $724 million, including $280 million for various pipeline projects to rehabilitate, replace, and expand distribution and transmission lines throughout the water system, and $207 million for water treatment plant projects. Based on Water Department planning practices, approximately 80 percent of the expenditures will be bond funded, with the remaining 20 percent funded from annual revenues on a pay-as-you-go (pay-go) basis. However, depending on the cash available after net operating revenues, the City may in the future apply additional cash to project funding, which would alter this mix.

CIP Financing Plan

Table 4-2 presents the flow of funds of the proposed capital financing plan, and summarizes the projected sources and uses of funds over the study period. This plan anticipates that proposed capital improvements will be financed from a combination of revenue bond proceeds, grants, transfers from net operating revenues, and interest income from the capital monies.

Table 4-2, line 19 provides an estimated beginning FY 09 balance of approximately $170 million. A policy-based reserve target exists for capital emergencies of $5 million, with the remaining funds available for capital project expenditures.

Table 4-2
Capital Project Sources and Uses, Flow of Funds

Line No	Description	Fiscal Year Ending June 30 2009 ($000s)	2010 ($000s)	2011 ($000s)	2012 ($000s)	2013 ($000s)
1	**Sources of Funds**					
2	New Bond Issues	400,435	0	123,535	205,765	0
3	Interest Earnings on Capital monies	4,638	4,067	2,489	4,827	5,042
4	Grant Receipts	8,000				
5	Policy-based Transfers in from Net Op Revs (a)	35,525	33,880	28,358	24,435	22,682
6	Total Source of Funds	448,598	37,946	154,382	235,027	27,724
7	**Use of Funds**					
8	Capital Improvement Program Project Expenditures	177,624	169,398	141,789	122,175	113,408
9	Transfer to Debt Service Reserve Fund (DSRF) (b)	29,091	0	8,975	14,949	0
10	Bond Issuance Costs	3,392	0	1,018	1,429	0
11	Capitalized Interest Cost for Deferred Debt Service	0				
12	Retire/Defease Existing Notes from Bond Proceeds (c)	207,000				
13	Total Use of Funds	417,106	169,398	151,782	138,553	113,408
14	**Net Sources and Uses of Funds**	31,492	(131,452)	2,601	96,474	(85,684)
15	**Cash Balance Detail**					
16	Beginning Fiscal Year Cash Balance					
17	Const Fund Balance (incld unrestricted funds, d)	164,786	196,278	64,826	67,427	163,901
18	Capital Emergency Reserve (set by City policy)	5,000	5,000	5,000	5,000	5,000
19	Total Beginning Balance	169,786	201,278	69,826	72,427	168,901
20	Net Sources and Uses of Funds	31,492	(131,452)	2,601	96,474	(85,684)
21	Ending Balance	201,278	69,826	72,427	168,901	83,217
22	**Debt Service Reserve Fund Held by Bond Trustees (DSRF)**					
23	Beginning Balance	47,312	76,403	76,403	85,378	100,326
24	Ending Balance	76,403	76,403	85,378	100,326	100,326
25	**DSRF Interest Earnings**	1,546	2,292	2,831	3,714	4,013
26	Planned CIP Cash Funding Percentage (e)	20%	20%	20%	20%	20%

(a) Transfers in are 20 percent of CIP expenditures.
(b) The DSRF is held by the trustee and is listed separate from the capital program. The DSRF is equal to the minimum of 1) 10 percent of the proceeds, 2) 125 percent of the average annual debt service, or 3) maximum annual debt service. Assumes a 30 yr term at 6% interest. Interest from the DSRF is transferred to non-operating revenues.
(c) Two private placement notes will be retired/defeased during FY 09. The exact timing is not incorporated into this fiscal year level model, which coincides with the level of detail in the City's rate model.
(d) Per discussion with City staff, beginning FY 09.
(e) Funded with cash transfers from operating monies.
Note: Debt service detail is shown in Table 4-8, and is presumed to start in the year following the year of issuance.
Source: Future bond issues, grant receipts, and beginning fund balances from City rate model, 9/12/08.

Bond Financed Projects

Line 2 of Table 4-2 shows a total Series 2009 Bonds of $400 million. This series will comprise two issues: A) to refund the 2007 Notes and B) to refund the 2008 Notes and help fund CIP expenditures. The total note refunding of $207 million is shown on Line 12. Not shown herein is that if economically feasible the Series 2009 A Bond issue may be increased to refund a portion of all of the outstanding 1998 Bonds. Additional bonds are projected to be issued in FY 11 ($124 million) and FY 12 ($206 million).

We project that cash available from current net operating revenues will finance $145 million of the CIP projects, or 20 percent of the total CIP. The Water Department targets funding 20 percent of the CIP with pay-go, with reserves, interest earnings and grants. Interest earnings are based on an estimated 2.5 percent earnings rate on average fund balances in FY 09; growing to 4.0 percent by FY 12. Interest earnings come from capital fund balances and reserves.

4.2 Water Service Revenues

This subsection identifies the annual rate-based revenues based on the City Council approved water service rates and the projected customer demand levels.

Customer Service Charges

City customers are grouped into basic residential, other domestic, commercial/industrial, and irrigation/temporary construction, interruptible agricultural and other classifications. Customers are charged a monthly fee based on meter size and a unique water commodity charge. Residential customers have an inclining block tiered commodity rate schedule to promote conservation awareness, while a uniform commodity rate is used with the other customer classes. The average commodity rate charged to each classification is based on the unique costs of serving their peak water demands, which vary both seasonally and diurnally. Current and projected water rates are shown in Table 4-3.

Projected Rate Increases

The City Council has approved service rate increases of 6.5 percent in FY 10 and 11. Table 4-3 presents a summary of current and projected water rates incorporated into the financial projections. The unit rates in the table incorporate the CWA water supply purchase cost pass through adjustment and Indirect Potable Reuse (IPR) project temporary rate increase projected for FY 09. Based on City policy, the approved rates are updated semiannually by Council with CWA pass-through costs to reflect minor adjustments for actual versus projected water purchase costs imposed on the City by CWA. The IPR temporary rate increase expires at the end of FY 10 with the completion of the IPR study. As such, the funding of this pilot study for an alternative water supply is a temporary charge on the customer bills.

Unlike the unit rates for other customer classifications, the rates for interruptible agricultural customers are a function of MWD and CWA rate schedule policies, and are not projected to materially change. The Water Department updates its financial plan annually to determine if the projected level of revenues from proposed rate increases is appropriate for cashflow requirements and for meeting current and projected debt service coverage requirements.

Table 4-3
Current and Projected Rates and Charges

Line No	Description	Fiscal Year Ending June 30 2009 Actual	2010 Approved	2011 Approved	2012 Projection	2013 Projection
1	**Rate Increase (a)**	6.50%	6.50%	6.50%	0.00%	0.00%
2	**Meter Base Fee ($/month)**					
3	Less than 1 inch	$16.52	$17.59	$18.73	$18.73	$18.73
4	1 Inch	$24.20	$25.78	$27.45	$27.45	$27.45
5	1 1/2 Inch	$41.76	$44.47	$47.37	$47.37	$47.37
6	2 Inch	$63.72	$67.86	$72.27	$72.27	$72.27
7	3 Inch	$115.29	$122.79	$130.77	$130.77	$130.77
8	4 Inch	$188.83	$201.10	$214.17	$214.17	$214.17
9	6 Inch	$371.02	$395.14	$420.82	$420.82	$420.82
10	8 Inch	$590.52	$628.91	$669.79	$669.79	$669.79
11	10 Inch	$847.35	$902.43	$961.08	$961.08	$961.08
12	**Commodity Charge ($/HCF)**					
13	Single Family Domestic Customer					
14	1-7 HCF per month	$2.80	$2.98	$3.07	$3.07	$3.07
15	8-14 HCF per month	$3.03	$3.23	$3.33	$3.33	$3.33
16	15 + HCF per month	$3.40	$3.63	$3.74	$3.74	$3.74
17	Other Domestic Customers	$3.03	$3.23	$3.33	$3.33	$3.33
18	Commercial/Industrial	$2.91	$3.10	$3.20	$3.20	$3.20
19	Irrigation/Temporary Construction	$3.11	$3.31	$3.42	$3.42	$3.42
20	Interruptible Agricultural Rate	$1.55	$1.52	$1.49	$1.50	$1.52
21	Other Utilities - Cal-American	$1.95	$2.08	$2.21	$2.21	$2.21

(a) Rate increases include pass-through known and approved CWA water supply purchase costs and IPR rate adjustment that will go in effect mid-year FY 09. The rate increases do not include unknown future CWA supply costs that would increase the average bill. The IPR rate adjustment expires at the end of FY 10.
Rate increases through FY 2011 have been approved by the City Council.
CWA pass-through charges have always been approved by the City Council, in the past.

Source: City rate model, 9/12/08.
HCF = hundred cubic feet

As shown in Table 4-4, the Water Department has approximately 273,000 retail accounts, plus an additional 10,000 other water service customers included in rate-based revenue projections. These accounts serve approximately 1.3 million residents, as well as businesses and citywide institutions. Based on a projected annual population growth of approximately 1 percent, by FY 13 approximately 294,000 water accounts will be served by the City's Water Department.

Table 4-4
Projected Potable Water Accounts

Line No	Meter Size	Fiscal Year Ending June 30 2009	2010	2011	2012	2013
1	Less than 1 Inch	234,762	237,307	239,687	242,068	244,449
2	1 Inch	23,109	23,360	23,594	23,829	24,063
3	1 1/2 Inch	10,908	11,026	11,136	11,247	11,358
4	2 Inch	12,670	12,807	12,936	13,064	13,193
5	3 Inch	421	426	430	434	439
6	4 Inch	474	479	484	488	493
7	6 Inch	224	226	228	231	233
8	8 Inch	104	105	106	107	108
9	10 Inch	41	41	42	42	42
10	Total Meters	282,712	285,777	288,643	291,510	294,377
11	Annual Growth	1.1%	1.1%	1.0%	1.0%	1.0%

Source: City rate model, 9/12/08

Table 4-5 summarizes the potable water consumption as projected by the City. The FY 09 and FY 10 estimated demands include a 15 percent voluntary reduction in response to a Stage 1 Voluntary Compliance Water Watch declaration by the City Council in July 2008. In FY 11 water consumption is expected to return to historical levels and remain stable. Interruptible agricultural demand is based on 5-year historical average consumption, and construction demands on 3-year historical consumption. Irrigation is forecasted to increase based on population growth and previous year usage. While the projected residential water demands are a function of population, the values also incorporate conservation in water use and a long-term reduction in average per capita water consumption. As such, although customer accounts are projected to increase about 1 percent per year, total consumption is limited to annual increases of about 0.8 percent. As shown, total potable water demand, estimated at 193,000 AF in FY 09, will increase to 234,000 AF by FY 13. These projected demands are the basis for water supply purchases from CWA, and excluded the six percent of water demand served by local water supply sources.

Table 4-5
Projected Water Demand

Line No	Customer Classification	Fiscal Year Ending June 30 2009 MCF	2010 MCF	2011 MCF	2012 MCF	2013 MCF
1	Single Family Domestic	2,955	2,971	3,525	3,553	3,582
2	1-7 HCF	1,478	1,486	1,762	1,777	1,791
3	8-14 HCF	827	832	987	995	1,003
4	15 + HCF	650	654	775	782	788
5	Other Domestic	1,749	1,759	2,086	2,103	2,120
6	Commercial	1,884	1,894	2,247	2,265	2,283
7	Industrial	86	86	101	101	101
8	Outside City Services	1	1	2	2	2
9	Other Utilities - Cal-Am	527	530	629	634	639
10	Interruptable Agricultural	14	14	19	19	17
11	Irrigation	1,162	1,174	1,395	1,409	1,423
12	Construction Meters	23	23	26	26	26
13	Total, Potable Water Sales (MCF)	8,401	8,453	10,030	10,113	10,194
14	Total Potable Water Sales (AF)	192,871	194,049	230,251	232,167	234,027
15	Total Water Sales less Cal-Am (AF)	180,762	181,874	215,810	217,607	219,350
16	Annual Increase in Demand (b)		0.6%	18.7%	0.8%	0.8%

(a) Demands are for potable water supplies.
(b) FY 2009 and 2010 water demands reflect a 15% reduction due to water shortage-related conservation measures.
Source: City rate model, 9/12/08.
MCF = Million Cubic Feet; AF = acre feet

Table 4-6 presents the projected water revenues for the City. The base monthly fee revenue is based on the monthly meter fee (Table 4-3) times the number of accounts (Table 4-4). Consumption revenues are dependent on the projected demand (Table 4-5) and the commodity charge (Table 4-3). Estimated revenues for fire services and back flow fees are also included in the table, while reclaimed water sale revenues are provided in the following sections. Total annual rate-based revenues are expected to grow from $309 million in FY 09 to $416 million in FY 13, based on the approved rate increases, adoption of the FY 09 CWA pass-through and IPR adjustments, and the projected customer demands. The significant increase in FY 11 represents the increased post-drought water demand and the unit rate increase. If the drought continues and reduced demand extends beyond FY 10, revenues will be lower than projected. However, this will be offset to an extent by lower water purchase costs from CWA.

Table 4-6
Current and Projected Revenues

Line No	Description	Fiscal Year Ending June 30 2009 ($000s)	2010 ($000s)	2011 ($000s)	2012 ($000s)	2013 ($000s)
	Meter Base Revenues					
1	Less than 1 Inch	46,246	50,089	53,880	54,415	54,950
2	1 Inch	6,665	7,226	7,773	7,850	7,927
3	1 1/2 Inch	5,423	5,885	6,330	6,393	6,456
4	2 Inch	9,607	10,429	11,218	11,330	11,441
5	3 Inch	578	627	675	682	688
6	4 Inch	1,064	1,155	1,243	1,255	1,268
7	6 Inch	987	1,073	1,154	1,165	1,177
8	8 Inch	727	790	850	858	867
9	10 Inch	411	447	480	485	490
10	Subtotal Base Fee Revenues	71,708	77,720	83,602	84,433	85,263
	Commodity Charge Revenues					
	Single Family Domestic Customer					
11	1-7 HCF	41,300	44,228	54,155	54,597	55,037
12	8-14 HCF	23,786	26,864	32,893	33,161	33,429
13	15 + HCF	20,984	23,696	29,016	29,253	29,488
14	Other Domestic Customers	50,285	56,794	69,539	70,106	70,671
15	Commercial/Industrial	54,297	61,310	75,024	75,610	76,194
16	Irrigation/Temporary Construction/Outside	34,886	39,608	48,533	49,027	49,497
17	Interruptible Agricultural Rate	203	215	290	287	266
18	Other Utilities - Cal-American	10,290	11,019	13,920	14,033	14,146
19	Subtotal Commodity Revenues	236,031	263,736	323,370	326,075	328,728
20	**Fire Service/Backflow Fees**	1,974	1,973	1,972	1,973	1,972
21	Total Rate-based Revenues (a)	309,713	343,429	408,943	412,480	415,964
22	Unit Rate Increase		6.5%	6.5%	0.0%	0.0%
23	Annual Account Growth		1.1%	1.0%	1.0%	1.0%
24	Annual Change in Water Demand (c)		0.6%	18.7%	0.8%	0.8%
25	Annual Increase in Rate-based Revenues		10.9%	19.1%	0.9%	0.8%

(a) Revenues are based on unit rates times demand. FY 09 revenues reflect CWA and IPR rate adjustments starting mid-year. FY 11 revenues reflect elimination of IPR rate adjustment. Unit rates are shown in Table 4-3. Revenues for reclaimed water are shown in Table 4-9.
(c) The increase in water demand in FY 11 represents the return to normal demand after the 15% voluntary conservation-based reductions of FY 09 and FY 10.
Source: Fire service/backflow fees from City rate model, 9/12/08. All remaining values calculated.
HCF = Hundred cubic feet

4.3 Water Department Expenditures

The Water Department revenues must be sufficient to meet the annual expenditures of ongoing operations and the capital program. Expenditures are funded on a prioritized basis as follows (1) total system operation and maintenance expenses; (2) debt service (consisting of principal and interest payments); (3) expenditures for major capital improvements met directly from revenues; and (4) provision for

adequate reserves. Projections of the cash requirements to meet these System expenditures for the period of FY 09 through FY 13 are developed in this section.

Operation and Maintenance Expense

Operation and maintenance expense includes water purchases, total annual salaries and wages of personnel, and the costs of fringe benefits, materials and services, outlays (routine capital expenses) and transfers. Since these costs are essential for daily operations of the Water Department, they are funded on a priority basis from operating revenues, as they are incurred. A summary of total projected operation and maintenance expense for the period FY 09 through FY 13 is presented in Table 4-7. Wages, salaries and fringe benefits are expected to remain flat through FY 12 and then increase by four percent per year, based on regional economic and employment trends.

Table 4-7
Projected Operation and Maintenance Expense

Line No	Expenditure	Fiscal Year Ending June 30 2009 ($000s)	2010 ($000s)	2011 ($000s)	2012 ($000s)	2013 ($000s)
1	Water Supply Purchase Costs (a, b)	123,181	123,794	137,265	138,122	138,954
2	Salary & Wages	44,576	44,576	44,576	44,576	46,360
3	Fringe Benefits	23,621	23,621	23,621	23,621	24,566
4	Supply/Services/Other NPE	43,467	45,206	47,014	48,895	50,851
5	Outlay	857	891	927	964	1,003
6	Miscellaneous & Other (c)	28,397	42,632	39,277	39,918	39,393
7	Transfers to General Government Services	6,084	6,084	6,084	6,084	6,327
8	Total O&M	270,184	286,805	298,765	302,181	307,453

(a) Water supply costs are based on FY 09 supply rates including pass-through cost escalations times projected demand.
(b) FY 09 water purchase cost is per budget; the FY 09 and 10 water costs reflects the drought-induced (15%) conservation-oriented demand level; and FY 11 costs are based on a return to normal water demand levels.
(c) Includes IPR costs.
Source: City rate model, 9/12/08.

The Water Department purchases the majority of its water needs from CWA with the remainder coming from local sources. CWA provides both raw and treated water based on operational considerations and long-term planning to minimize costs through an optimum use of regional facilities.

Costs for materials and supplies and outlays are conservatively expected to increase by four percent per year. Miscellaneous costs include the impact of new facilities on O&M activities, management information system (MIS) services and energy/utility expenditures. Energy/utility costs are forecasted to increase eight percent per year. The operation and maintenance expense is projected to increase from about $270 million in FY 09 to $307 million in FY 13, as shown in Table 4-7.

Routine Capital Improvements

Expenditures for routine capital improvements include minor capitalized assets with short depreciation periods. These include items routinely acquired each year, such as vehicles and office equipment, and minor improvements or repairs. An allowance for construction and engineering costs to be expensed is also included in this category. Since the costs of these improvements are a continuing expense to be met each year, the Water Department appropriately finances these expenditures from current water revenues. As shown in Table 4-7, routine capital outlay is estimated to be $857,000 in FY 09, and escalate at 4 percent per year through the projection period.

Existing and Projected Debt Service

The Water Department's existing debt service schedule includes both senior and subordinate debt, as shown in Table 4-8. Bond assumptions and indices are also shown in Table 4-8. The Series 1998 bond issue was a senior debt issue. The Series 2002 Bonds, 2007 Notes, and 2008 Notes are subordinate lien issues as is the SRF Loan.

Table 4-8
Existing and Projected Debt Service Schedule and Assumptions

Line No	Description	Fiscal Year Ending June 30 2009 ($000s)	2010 ($000s)	2011 ($000s)	2012 ($000s)	2013 ($000s)
	Debt Service Schedule					
1	Existing Senior Debt	21,354	12,089	12,089	12,089	12,089
2	Existing Subordinate Debt	24,895	30,128	27,293	27,296	27,299
3	Existing Subordinate SRF Debt	1,376	1,376	1,376	1,376	1,376
4	Proposed New Senior Debt		29,091	29,091	38,066	53,014
5	Total Existing & Proposed Debt	47,625	72,684	69,849	78,827	93,779
	Bond Cost of Issuance & Insurance					
6	New Bond Issue Par Value	400,435	0	123,535	205,765	0
7	Bond Issuance Costs	3,392	0	1,018	1,429	0
8	New Debt Service Reserve Requirements	29,091	0	8,975	14,949	0
	Bond Assumptions and Indices					
9	Debt term (all years)	30				
10	Cost of issuance					
11	Discount (% of bond size)	0.50%	0.50%	0.50%	0.50%	0.50%
12	Fixed Cost of Issuance ($1,000)	1,389	400	400	400	400
13	Earnings on Fund Balance	2.5%	3.0%	3.5%	4.0%	4.0%
14	Bond Interest Rate (a)	6.0%	6.0%	6.0%	6.0%	6.0%

(a) The bond interest rate is based on a projected market rate for municipal revenue bonds. DSRF interest earnings are not shown herein. Bond debt repayment starts in the year following bond issuance.

Source of Existing Debt: City schedules.

It is anticipated that the sale of the Series 2009 Bonds and additional bonds in FY 11 and FY 12 will be necessary to finance capital projects; the Series 2009 Bonds will refinance and/or defease $207 million in existing notes, as well as finance CIP expenditures. As previously shown in Table 4-2, it is assumed that the Series 2009 Bonds will total some 400 million, and additional bonds will be issued amounting to $124 million in FY 11 and $206 million in FY12. The projected bond terms are for 30-years at a 6 percent interest rate, plus typical costs of issuance. As shown in Table 4-8, the projected costs associated with issuing new bonds include an underwriter discount and a fixed cost of issuance as well as deposits to the Debt Service Reserve Fund. Table 4-8 shows the projected debt service schedule for existing and proposed revenue bonds throughout the study period.

4.4 Water Enterprise Revenues and Expenditures Proforma

Table 4-9 presents a proforma cashflow statement for the Water Department's projected revenues and expenditures during the study period. System revenues must be at least sufficient to fund the annual costs of operation and maintenance expense, debt service costs on existing and proposed bonds and routine annual capital improvements while maintaining adequate operating reserve funds and complying with all revenue bond debt service coverage requirements.

Table 4-9 identifies that the Water Fund has a FY 09 beginning year balance of $204 million. This balance is associated with the operations, and is in addition to the capital monies previously identified in Table 4-2. The current reserves include:

Reserve Type	Amount	Notes
Operating	$19,936,000	Currently 50 days, increasing to 70 days by FY 10
Secondary Purchase	$7,132,000	6 percent of water purchase costs
SRF Loan	$1,376,000	Fixed
Rate Stabilization Fund	$20,500,000	Fixed

The Water Department has a policy of maintaining operation reserves equal to 45 days of O&M expenditures, excluding water purchase costs. The operating reserve policy is increasing to 70 days with the increase in rate-based revenues.

The rate stabilization fund was originally established by the Master Installment Purchase Agreement of August 1998, and a balance of such amounts as the City shall determine (currently $20.5 million) is maintained in the fund. Transfers to or from the Rate Stabilization fund are treated as operating expenditures or operating revenues, respectively, and these transfers are included in the Pledged Revenues in the calculations of bond coverage ratios. The balance is available and pledged to augment funds available for annual debt service on the existing and proposed bonds.

Table 4-9
Water Utility Flow of Funds and Debt Service Coverage

Line No	Description	Fiscal Year Ending June 30 2009 ($000s)	2010 ($000s)	2011 ($000s)	2012 ($000s)	2013 ($000s)
	Operating Revenues					
1	Water Service Rate-based Revenues (Proposed)	309,713	343,429	408,943	412,480	415,964
2	Reclaimed Water Service Revenues	7,876	8,304	9,472	10,307	11,148
3	Miscellaneous Service Charges	1,227	1,251	1,275	1,299	1,323
4	Other Operating Revenue (a)	19,245	19,611	19,984	20,363	20,750
5	Other Revenues	1,865	1,385	1,390	1,395	1,400
6	Total Operating Revenues	339,926	373,980	441,064	445,844	450,586
7	**Operating Expense**					
8	Water Purchase Costs	123,181	123,794	137,265	138,122	138,954
9	O&M Expenses	147,003	163,011	161,500	164,059	168,499
10	Total Operating Expense	270,184	286,805	298,765	302,181	307,453
11	**Net Operating Revenues**	69,742	87,175	142,299	143,664	143,133
12	**Non-Operating Revenues (Expenses) & Transfers**					
13	Interest Income on Operating funds	5,167	6,323	8,647	12,682	15,302
14	Interest Income on DSRF	1,546	2,292	2,831	3,714	4,013
15	Projected Debt	(47,625)	(72,684)	(69,849)	(78,827)	(93,779)
16	Capacity Fee Proceeds	11,466	14,224	13,510	14,139	14,066
17	Pay-go Transfers to Capital Programs	(35,525)	(33,880)	(28,358)	(24,435)	(22,682)
18	Net Non-operating Revenues & Transfers	(64,971)	(83,725)	(73,219)	(72,727)	(83,079)
19	**Annual Change in Cash Balance**	4,771	3,450	69,080	70,937	60,053
20	**Cash Balance Detail (b)**					
21	Beginning Fiscal Year Cash					
22	Operating Reserves	19,936	31,262	30,973	31,463	32,315
23	Secondary Supply (water purchase reserve)	7,132	7,428	8,236	8,287	8,337
24	Rate Stabilization Fund	20,500	20,500	20,500	20,500	20,500
25	Subordinate SRF Loan Reserve	1,376	1,376	1,376	1,376	1,376
26	Unrestricted Cash	155,338	148,488	151,420	219,958	289,993
27	Total Beginning Fiscal Year Cash Balance	204,283	209,054	212,504	281,584	352,521
28	Net Annual Change in Cash Balance	4,771	3,450	69,080	70,937	60,053
29	Ending Fiscal Year Balance	209,054	212,504	281,584	352,521	412,575
30	**Operating Reserve Target per City Policy**					
31	Operations @ 70 days O&M excld water purchase	28,192	31,262	30,973	31,463	32,315
32	Secondary Water Supply (c)	7,391	7,428	8,236	8,287	8,337
33	SRF Loan Reserve	1,376	1,376	1,376	1,376	1,376

(a) Other operating revenue includes land and building rentals, new water services, services rendered on other funds, other revenue, and lakes recreation.
(b) Cash balances do not include Capital monies; refer to Table 4-2.
(c) The Secondary Supply water reserve is set by City policy at 6 percent of the cost of water purchases.
Source: Operating revenue except water sales, capacity fee proceeds, and beginning fund balances from City rate model, 9/12/08. All remaining values calculated.

Table 4-9 presents the projected water service revenues incorporating both the existing and proposed rates. The proposed rates are part of the Water Department's long range financial plan developed by the financial planning model used by the Water Department.

The table shows that projected revenues are more than sufficient to meet the total revenue requirements of the system during the study period. Water service revenues represent the most significant source of revenues, averaging approximately 92 percent of total revenue; other operating revenues include reclaimed water service charges, miscellaneous revenues and interest income. Also included in revenues are the proceeds from land and building rentals, new water services and lakes recreation. Total operating expenses include water purchase costs and O&M expense, previously projected in Table 4-7.

Non-operating revenues included interest earned on operating fund balances, and system capacity charges. Capacity charges are expected to range between $11.5 million and $14.2 million per year over the study period. These revenues represent impact fee exactions from new customers who benefit from capacity created from expansion projects.

The primary non-operating expense is debt service. As previously discussed, we have projected that the Series 2009 A and B Bonds are sized at $400 million, with additional bond issues of $124 million in FY 11 and $206 million in FY 12 to help finance major capital program expenditures and refinance and/or defease the Series 2007 and 2008 private placement notes. This debt financing provides a mechanism to spread the costs of major capital improvements over a portion of the useful life of the funded project and to more equitably recover the asset costs from both current and future users.

4.5 Debt Service Coverage

The single most important measurement of the ability of a utility to repay loans such as revenue bonds is the debt service coverage ratio. This ratio is defined in the bond covenant requirements of the current and proposed revenue bonds. Table 4-10 shows the coverage ratio on both the Senior and Aggregate bond debt service.

The City is required by the Installment Purchase Agreement to maintain 120 percent debt service coverage from pledged revenues on all existing and proposed senior lien debt. The senior debt service coverage test equals adjusted net revenues (which excludes interest earnings on reserve funds held by the bond trustees for parity obligations) divided by existing and proposed senior debt less the interest on the senior debt reserve fund. The aggregate debt service coverage equals the adjusted net revenues (including interest on the debt reserve fund) divided by the total existing and proposed debt.

Table 4-10 shows that senior debt service coverage is projected to meet or exceed 284 percent during the study period (FY 09 - FY 13). Aggregate debt service coverage is projected to meet or exceed 157 percent during the study period. These findings indicate that the Water Department has approved future customer service rates that will satisfy all debt service coverage requirements during the study period.

Table 4-10
Water Utility Debt Service Coverage

Line No	Description	Fiscal Year Ending June 30 2008 ($000s)	2009 ($000s)	2010 ($000s)	2011 ($000s)	2012 ($000s)	2013 ($000s)
1	Senior Debt Service Coverage						
2	Net Operating Revenues (a)	43,862	69,742	87,175	142,299	143,664	143,133
3	Interest Income on Operating Funds	8,268	5,167	6,323	8,647	12,682	15,302
4	Interest Income on Capital Monies (b)	2,465	5,187	4,725	3,257	5,704	5,920
5	Capacity Fee Proceeds	8,459	11,466	14,224	13,510	14,139	14,066
6	Total Adjusted Net System Revenues (c)	63,053	91,561	112,447	167,713	176,190	178,420
7	Projected Senior Debt Service	21,354	21,354	41,180	41,180	50,155	65,104
8	Senior DSRF Interest (d)	1,370	998	1,634	2,063	2,837	3,136
9	Adjusted Debt Service	19,984	20,356	39,546	39,117	47,318	61,968
10	Senior Debt Service Coverage (c)	316%	450%	284%	429%	372%	288%
11	Aggregate Debt Service Coverage						
12	Net Operating Revenues	43,862	69,742	87,175	142,299	143,664	143,133
13	Interest Income on Operating Funds	8,268	5,167	6,323	8,647	12,682	15,302
14	Interest Income on Capital Monies	1,922	4,638	4,067	2,489	4,827	5,042
15	Capacity Fee Proceeds	8,459	11,466	14,224	13,510	14,139	14,066
16	Debt Service Reserve Fund Interest	2,435	1,546	2,292	2,831	3,714	4,013
17	Total Net System Revenues	64,945	92,559	114,081	169,776	179,026	181,556
18	Projected Senior Debt Service	21,354	21,354	41,180	41,180	50,155	65,104
19	Projected Subordinate Debt Service	21,728	26,271	31,504	28,668	28,672	28,675
20	Aggregate Debt Service (e)	43,082	47,625	72,684	69,849	78,827	93,779
21	Aggregate Debt Coverage (f)	151%	194%	157%	243%	227%	194%

(a) FY 09 & FY 10 figures reflect an anticipated 15% water conservation. Thereafter, figures reflect pre-water conservation levels. Includes service charges and reclaimed water sales. Includes revenues generated by purchase water cost increases that were affected as a result of rate increases implemented by CWA. Reflects treated water purchases, which do not include unknown future rate increases due to potentially increasing CWA supply costs.
(b) Includes interest income on Subordinate DSRF.
(c) As defined in the Installment Purchase Agreement.
(d) Includes anticipated bond issuances subsequent to FY 09.
(e) Includes Senior obligations, Subordinated obligations, and SRF debt service without adjustment for DSRF earnings.
(f) Ratio of total Net System Revenues to Aggregate Debt Service.

4.6 Operating Reserves

The Water Department currently maintains an operating reserve target equal to 45 days of O&M expenses, excluding water purchase costs. This target is scheduled to increase to 70 days with the increase in rate-based revenues. Currently, the water operating fund reserves equal 50 days of operating costs. The projected operating reserve will meet the 70 day target level by FY 10.

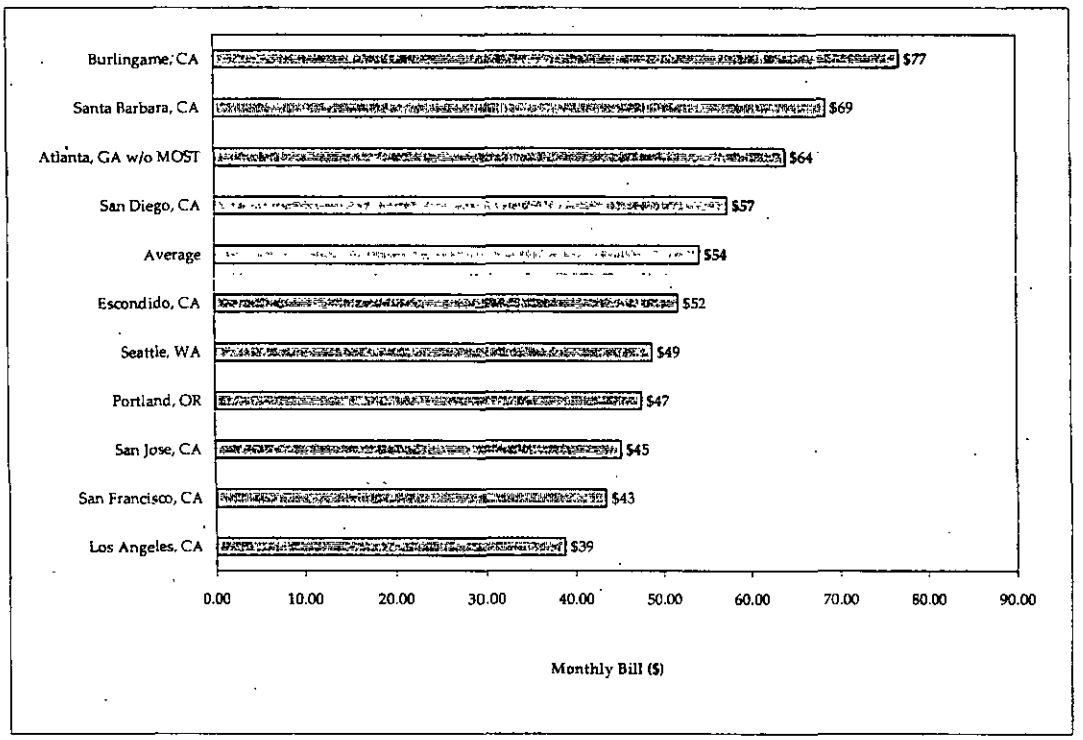
4.7 Affordability

A 2006 American Community Survey conducted by the US Census Bureau stated the median household income in San Diego County was almost $58,815. The typical monthly water bill of $57 for an average single family residence that will be effective in FY 09 represents 1.2 percent of this median household income. As such, the projected monthly bill is below the 2.0 percent median household income baseline

used as a typical industry standard for affordability by the U.S. Environmental Protection Agency.

4.8 Water Bill Comparison

Figure 4-1 presents a comparison of typical water service bills for various water utilities. The comparison of water utilities represent either utilities serving high population cities or utilities serving large cities in California near or on the coast with imported supplies. The water bills are based on current rates (as of September 2008) assuming a water flow of 14 hundred cubic feet per month with a meter size of less than 1 inch. The monthly water bill for an average San Diego single family residential customer is estimated to be $57.30 per month, effective July 1, 2008.



(a) These bills are based on water use of 14 HCF per month and a meter size of less than 1 inch.

Figure 4-1
Comparison of Monthly Water Bills with Other Cities (a)

Section 5
Parity Obligation (Additional Bonds) Test

A condition for the issuance of the additional bonds projected in this analysis is a certification that the City complies with the Parity (or Subordinate) Obligations test, as provided in the Installment Purchase Agreement. As provided in the Agreement, the City is required to meet one of two Obligation tests. Both tests examine the coverage ratio of the Water Department's pledged revenues to the total existing and proposed bonded debt. The first test is a historical test, and is based on any 12 consecutive month period within the 18 consecutive months prior to the proposed bond issuance. The second (alternative) test is based on a five year forecast of the coverage ratio. The tests differ slightly for parity versus subordinated bonds.

As shown in Table 5-1 on the following page, the Water Department meets the historical coverage test.

The historical coverage test allows the Water Department to use data from any 12 month consecutive period within the 18 consecutive months ending immediately prior to the incurring of additional Parity Obligations. The Water Department can rely upon financial statements prepared by the City that have not been subject to audit by an independent certified public accountant if audited financial statements for the period are not available. The data used in the historical coverage test in Table 5-1 is derived from the unaudited financial statements of FY 08, which ended on June 30, 2008.

The historical coverage test requires that the Water Department demonstrate that during the 12-month period the Net System Revenues are at least 1.20 times the Maximum Annual Debt Service on all Parity Obligations to be Outstanding immediately after the issuance of the proposed Parity Obligations or at least 1.00 times the Maximum Annual Debt Service on all Obligations to be Outstanding immediately after the issuance of the proposed Parity Obligations.

All capitalized terms used in this Section 5 that are not otherwise defined herein have the meanings given such terms in the Installment Purchase Agreement.

Table 5-1
Historical Additional Bonds Test

Line No	Description	FY 2008 ($000s)
1	Operating Receipts	
2	Water Sales (a)	288,949
3	Other Services	9,564
4	Rentals	5,695
5	Other Revenue	2,992
6	Total Operating Receipts	307,200
7	Operating Expenditures	
8	Water Purchases	128,114
9	Operations and Maintenance	135,225
10	Total Operating Expenditures	263,339
11	Operating Income	43,862
12	Other Income	
13	Interest Earnings	12,625
14	Capacity Charges	8,459
15	Other Income (b)	2,746
16	Total Other Income	23,829
17	Net Income	67,691
18	Less: DSFR Earnings on Parity Obligations	1,370
19	Adjusted Net System Revenue	66,321
20	Maximum Annual Debt Service on all Parity Obligations	54,466
21	Test (c)	1.22

(a) Includes Service Charges and Reclaimed Water Sales
(b) Includes cancelled prior year encumbrances, recovered damages, land sales
(c) Ratio of Net System Revenue to Parity Obligations > = 1.20

Appendix A
Proposed Capital Improvement Plan Projects

Table A-1
Proposed Capital Improvement Plan Projects

Line #	PROJECT	PROJECT TYPE	Current Phase as of Sept. 2008	FY2009	FY2010	FY2011	FY2012	FY2013
1	Alvarado WTP Expansion Phase 2	Water Treatment Plant	close-out	$ 260,000	$ -	$ -	$ -	$ -
2	Alvarado WTP-SD12	Water Treatment Plant	planning	$ -	$ 119,444	$ 184,632	$ 221,311	$ 2,521,848
3	Alvarado WTP-Ozone Improv	Water Treatment Plant	construction	$ 21,981,620	$ 23,453,520	$ 9,790,666	$ 314,072	$ -
4	Alvarado WTP Rehab Floc/Sed Basin Ph3	Water Treatment Plant	design	$ 3,387,234	$ 21,622,888	$ 5,296,723	$ -	$ -
5	Miramar WTP SDFCF 24, 25, 26	Water Treatment Plant	planning	$ 463,865	$ 1,137,841	$ 3,618,022	$ 100,143	$ 12,326
6	Miramar WTP Contract B - Floc/Sed Basin	Water Treatment Plant	construction	$ 33,574,060	$ 14,954,826	$ -	$ -	$ -
7	Miramar WTP Contract D - Landscape & Site Impr	Water Treatment Plant	design	$ 75,679	$ 21,322	$ 3,868,217	$ 826,341	$ 501
8	Miramar WTP Contract C - Ozone Equip/Install	Water Treatment Plant	construction	$ 14,679,265	$ 9,841,329	$ -	$ -	$ -
9	Otay WTP Upgrade Phase 1 (Flocc/Sed Basin & Reh)	Water Treatment Plant	construction	$ 7,949,200	$ 7,978,478	$ 5,664,644	$ 171,099	$ -
10	Otay WTP Upgrade Phase 2	Water Treatment Plant	construction	$ 4,385,097	$ 4,751,556	$ 2,887,505	$ 6,423	$ -
11	*Otay WTP Upgrade Phase 3*	*Water Treatment Plant*	*planning*	$ -	$ -	$ -	$ -	$ 1,251,452
12	Miramar Clearwell Improvements	Water Treatment Plant	planning	$ -	$ -	$ -	$ -	$ 118,934
				$ 86,756,020	**$ 83,881,204**	**$ 31,310,409**	**$ 1,639,389**	**$ 3,905,061**
13	AA - Freeway Relocations	Pipelines	various	$ 35,569	$ 50,000	$ 50,000	$ 50,000	$ 50,000
14	AA - Water Main Replacements	Pipelines	various	$ 36,630,050	$ 43,264,000	$ 44,994,560	$ 46,794,344	$ 48,666,116
15	Miramar Pipeline Monitoring	Pipelines	planning	$ 67,576	$ 578,261	$ 649,106	$ 200,152	$ -
16	Torrey Pines Rd/La Jolla Blvd - Phase 2	Pipelines	completed	$ 14,695	$ -	$ -	$ -	$ -
17	La Jolla Shores Dr. 16" Water Main Repl.	Pipelines	planning	$ -	$ -	$ 259,158	$ 1,432,365	$ 518,077
18	*Harbor Drive Pipeline*	*Pipelines*	*planning*	$ 168,179	$ 254,395	$ 2,621,371	$ 6,500,955	$ 123,905
19	El Capitan Pipeline No. 2	Pipelines	planning	$ -	$ -	$ 1,049,917	$ 1,407,332	$ 1,975,936
20	El Monte Pipeline No. 2	Pipelines	planning	$ -	$ -	$ 2,449,693	$ 2,889,454	$ 4,943,735
21	Kearny Mesa Pipeline Upgrade	Pipelines	planning	$ -	$ -	$ 1,111,866	$ 1,308,380	$ 2,247,061
22	Caltrans Relocation Miramar	Pipelines	Construction	$ 568,000	$ 7,664	$ 333	$ -	$ -
23	CALTRANS-W.Bernardo Dr-I1	Pipelines	Close-out	$ 364	$ -	$ -	$ -	$ -
24	SR125 - Toll Road	Pipelines	Close-out	$ 56,678	$ -	$ -	$ -	$ -
25	CALTRANS - I905	Pipelines	Design	$ 9,765	$ 2,791	$ -	$ -	$ -
26	CALTRANS-El Monte-RTE 67	Pipelines	Construction	$ 42,872	$ 41,311	$ 4,198	$ -	$ -
27	Caltrans Carroll Canyon and I-15 Potable Water	Pipelines	Construction	$ 1,071,565	$ 3,742	$ -	$ -	$ -
28	Caltrans Carroll Canyon and I-15 Reclaimed Water	Pipelines	Construction	$ 1,868,025	$ 2,850	$ -	$ -	$ -
29	Pomerado Pipeline No. 2	Pipelines	planning	$ -	$ 11,669	$ -	$ -	$ -
30	Otay 2nd Pipeline - Isolate Service Sweetwater	Pipelines	planning	$ -	$ -	$ 99,716	$ 269,350	$ 453,352
31	Otay 2nd Pipeline - Cathodic Protect Otay Ranch	Pipelines	planning	$ -	$ -	$ -	$ 24,377	$ 40,231
32	Otay 2nd Pipeline - Cast Iron Replacement Phase	Pipelines	construction	$ 8,367,217	$ 2,782,752	$ -	$ -	$ -
33	Otay 2nd Pipeline - North Encanto Replacement	Pipelines	construction	$ 4,523,186	$ 523,098	$ -	$ -	$ -
34	Lindbergh Field 16in Cast Iron Replacement	Pipelines	planning	$ -	$ 107,061	$ 120,221	$ 553,600	$ 4,578
35	La Jolla/Pacific Beach-WTR	Pipelines	planning	$ 2,427	$ -	$ -	$ -	$ -
36	Fault Crossing Retrofits to Large Pipelines	Pipelines	design/construction	$ 1,413,234	$ 211,865	$ -	$ -	$ -
37	*Landslide/Liquefaction Pipeline Mitigation*	*Pipelines*	*design/construction*	$ 2,865,807	$ 233,162	$ -	$ -	$ -
				$ 57,705,209	**$ 48,074,621**	**$ 53,410,139**	**$ 61,430,309**	**$ 59,022,991**

Table A-1
Proposed Capital Improvement Plan Projects

Line #	PROJECT	PROJECT TYPE	Current Phase as of Sept. 2008	FY2009	FY2010	FY2011	FY2012	FY2013
38	AA - Water Pump Station Rehabilitations	Pump Station	various	$ -	$ -	$ 500,004	$ 500,004	$ 500,000
39	Tierrasanta (Via Dominique) Pump Station	Pump Station	planning	$ -	$ 90,346	$ 126,684	$ 132,365	$ 573,278
40	Soledad Pump Station Upgrade	Pump Station	planning	$ -	$ -	$ -	$ -	$ 101,911
41	Scripps Miramar Pump Station Upgrade	Pump Station	planning	$ -	$ -	$ 204,687	$ 108,476	$ 238,653
42	Tierrasanta Norte Water Pump Station	Pump Station	planning	$ -	$ -	$ -	$ 18,620	$ 36,396
43	Rancho Penasquitos Pump Station	Pump Station	construction	$ 9,550,000	$ 3,750,446	$ -	$ -	$ -
44	Serra Mesa Pump Station	Pump Station	planning	$ -	$ -	$ -	$ 115,848	$ 374,620
45	Parkland Pump Station	Pump Station	planning	$ -	$ -	$ -	$ 1,563,416	$ 1,699,118
				$ 9,550,000	**$ 3,840,792**	**$ 831,375**	**$ 2,438,729**	**$ 3,523,976**
46	AA - Standpipes and Reservoirs	Storage Facility	various	$ -	$ -	$ 500,004	$ 500,004	$ 500,000
47	AA - Dams and Reservoirs	Storage Facility	various	$ 146,847	$ 250,000	$ 250,000	$ 250,000	$ 250,000
48	Barrett Reservoir Outlet Tower Upgrade	Storage Facility	construction	$ 1,639,374	$ 3,333	$ -	$ -	$ -
49	El Capitan Reservoir Rd Improvements	Storage Facility	planning	$ -	$ -	$ -	$ 23,153	$ 3,327,049
50	Morena Reservoir Outlet Tower Upgrade	Storage Facility	planning	$ -	$ -	$ -	$ 1,013,343	$ 2,334,035
51	Rancho Bernardo Reservoir Upgrade	Storage Facility	construction	$ 4,461,387	$ -	$ -	$ -	$ -
52	Lower Otay Reservoir - Emergency Outlet Improvmt	Storage Facility	design	$ 447,628	$ 160,292	$ 589,037	$ 1,876,898	$ 1,894,959
53	Pomerado Park Reservoir Upgrade	Storage Facility	planning	$ -	$ -	$ 64,896	$ 167,044	$ 682,869
54	Paradise Mesa Standpipe Rehabilitation	Storage Facility	planning	$ -	$ -	$ -	$ -	$ 195,674
55	La Jolla View Reservoir	Storage Facility	planning	$ -	$ -	$ -	$ 101,064	$ 467,763
56	La Jolla Exchange Place Reservoir	Storage Facility	planning	$ -	$ -	$ -	$ -	$ 1,742
57	La Jolla Country Club Reservoir Seismic Upgrade	Storage Facility	planning	$ -	$ -	$ -	$ 149,185	$ 245,005
58	Murray Outlet Tower	Storage Facility	planning	$ -	$ -	$ -	$ 10,332	$ 148,029
59	San Carlos Reservoir Interior Enhancement	Storage Facility	planning	$ -	$ 493,575	$ 43,707	$ -	$ -
60	Lake Hodges Dam Modification	Storage Facility	planning	$ 99,186	$ 35,389	$ 75,025	$ 40,410	$ 483,557
61	Morena Dam Grotto	Storage Facility	planning	$ -	$ -	$ -	$ 77,475	$ 452,533
				$ 6,794,422	**$ 942,589**	**$ 1,522,669**	**$ 4,208,908**	**$ 10,983,215**
62	AA - Pooled Contingencies - RWDS	Reclaimed Pipelines	various	$ 250,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
63	AA - Reclaimed Water Extension	Reclaimed Pipelines	various	$ 1,000,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
64	Black Mountain Ranch Reclaimed Water Storage Tank	Reclaimed Pipelines	completed	$ 2,500	$ -	$ -	$ -	$ -
65	Carmel Valley Reclaimed Water Pipeline	Reclaimed Pipelines	design	$ 100,000	$ 1,096,060	$ 4,566,017	$ 1,872,039	$ -
66	Los Penasquitos Canyon RW Project	Reclaimed Pipelines	design	$ 140,000	$ 3,270,969	$ 973,308	$ 108,185	$ -
67	Pacific Highlands RWP - Participation Agreement	Reclaimed Pipelines	design	$ 1,023,508	$ 137,953	$ -	$ -	$ -
68	Camino Del Sur RWP - E&CP	Reclaimed Pipelines	design	$ 166,506	$ 631,509	$ 483,707	$ -	$ -
69	Camino del Sur Recycled Water P/L- Part Agmt	Reclaimed Pipelines	design	$ 422,092	$ 969,610	$ 391,369	$ -	$ -
				$ 3,104,606	**$ 7,106,101**	**$ 7,414,401**	**$ 2,980,224**	**$ 1,000,000**
70	Mission Valley Groundwater Desalination	Groundwater	planning	$ -	$ -	$ -	$ 1,020,814	$ 885,349
71	San Pasqual Brackish Groundwater Desalination Demo	Groundwater	design	$ 1,193,982	$ 1,463,612	$ -	$ -	$ -
72	San Pasqual Brackish Desalination	Groundwater	planning	$ -	$ 5,181,976	$ 18,352,782	$ 19,106,706	$ 74,129
73	San Diego Formation Desalination	Groundwater	planning	$ -	$ -	$ -	$ -	$ 250,457
74	Groundwater Pilot Production Wells	Groundwater	planning	$ 825,834	$ 998,046	$ 176,126	$ -	$ -
				$ 2,019,816	**$ 7,643,634**	**$ 18,528,908**	**$ 20,127,520**	**$ 1,209,935**

Table A-1
Proposed Capital Improvement Plan Projects

Line #	PROJECT	PROJECT TYPE	Current Phase as of Sept. 2008	FY2009	FY2010	FY2011	FY2012	FY2013
75	SD 17 Flow Control Facility (Alvarado)	Security	design	$ 3,180,180	$ 9,602,958	$ 5,674,242	$ 230,042	$ -
76	Water Dept. Security Upgrades	Security	design	$ 535,400	$ 506,042	$ 1,918,534	$ 96,253	$ -
77	Water Dept. Security Upgrades - Miramar	Security	design	$ 80,470	$ -	$ -	$ -	$ -
				$ 3,796,050	**$ 10,109,000**	**$ 7,592,776**	**$ 326,295**	**$ -**
78	AA - Corrosion Control	Miscellaneous	various	$ -	$ 100,000	$ 100,000	$ 100,000	$ 100,000
79	AA - Pooled Contingencies - Water	Miscellaneous	various	$ 7,000,000	$ 7,000,000	$ 7,000,000	$ 7,000,000	$ 7,000,000
80	AA - Meter Boxes	Miscellaneous	various	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
81	AA-Pressure Reducing Stations	Miscellaneous	various	$ 200,000	$ 200,000	$ 500,000	$ 1,000,000	$ 1,000,000
82	Miramar Service Area Improvements	Miscellaneous	planning	$ -	$ -	$ 3,000,000	$ 10,000,000	$ 10,000,000
83	Alvarado Service Area Improvements	Miscellaneous	planning	$ -	$ -	$ 10,000,000	$ 10,000,000	$ 10,000,000
84	Otay Service Area Improvements	Miscellaneous	planning	$ -	$ -	$ -	$ -	$ 5,000,000
85	Kensington Pressure Regulator	Miscellaneous	planning	$ -	$ -	$ -	$ 329,788	$ 7,977
86	Alvarado Water Quality Lab Roof Replacement	Miscellaneous	close-out	$ 197,506	$ -	$ -	$ -	$ -
87	Barrett Flume Cover	Miscellaneous	planning	$ -	$ -	$ 78,596	$ 94,170	$ 154,659
				$ 7,897,506	**$ 7,800,000**	**$ 21,178,596**	**$ 29,023,958**	**$ 33,762,636**
				$ 177,623,629	**$ 169,397,941**	**$ 141,789,273**	**$ 122,175,332**	**$ 113,407,814**

Table A-2
Capital Improvement Plan Project Descriptions

	CIP Project	Project Type	Description
1	Alvarado WTP Expansion Phase 2	Water Treatment Plants	This CIP item closes out the expansion phase of the Alvarado Water Treatment Plant project. The plan is to upgrade and expand the Alvarado WTP to its ultimate capacity of 200 mgd to meet the 2015 water demands in several phases. The first phase increased the capacity of the WTP to 150. Phase 2 increases the capacity to 200 mgd by providing additional flocculation and sedimentation basins and new controls for the original eight gravity filters.
2	Alvarado WTP SD12	Water Treatment Plants	Upgrade & expansion of CWA's flow control facility to 150 mgd. Another 50 mgd will be provided from San Vicente through El Monte pipeline and Lake Murray Reservoir to provide 200 mgd total plant capacity. Two (size to be determined) Pressure Sustaining Valves would be installed and used with two existing 16-inch Pressure Sustaining Valves within the existing Meter and Pressure Control Structure.
3	Alvarado WTP-Ozone Improv Ph 4 Ozone	Water Treatment Plants	Construction of ozone disinfection and pumping facilities to meet new Federal Safe Drinking Water requirements and State of California Department of Health Services compliance order, and the associated process changes to make ozone the primary water disinfectant and chlorine secondary.
4	Alvarado WTP Rehab Floc/Sed Basins Ph 3	Water Treatment Plants	This project consists of rehabilitation of Flocculation/Sedimentation Basins 1 & 2, as well as installation of Ozone pipeline from Ozone Building through the exiting basins to the existing filter.
5	Miramar WTP SDFCF 24, 25, 26	Water Treatment Plants	In order to meet capacity of the Miramar WTP Upgrade and Expansion (MWTP) project from 140 MGD to 215 MGD, it is necessary to upgrade CWA's existing flow control facility (5A/5B/5C) to increase capacity of raw water to MWTP.
6	Miramar WTP Contract B - Floc/Sed Basin	Water Treatment Plants	This project will expand the plant capacity from 140 mgd to 215 mgd to meet water demands through 2030. The construction scope of work will involve: Construction of 4 new Flocculation and Sedimentation basins 5, 6, 7 and 8 inclusive of associated piping - Demolition of the twelve existing filters - Demolition of the existing backwash water tank and associated piping - Demolition of the existing Flocculation and Sedimentation basins - Construction of 60 inch influent pipelines to New Flocculation Basins - Construction of 108 inch & 120 inch settled water pipelines
7	Miramar WTP Contract D - Landscape & Site Improvement	Water Treatment Plants	This project consists of final Water Treatment Plant site landscaping, irrigation, parking, paving and new Guard Shack and site entrance.

Table A-2
Capital Improvement Plan Project Descriptions

	CIP Project	Project Type	Description
8	Miramar WTP Contract C - Ozone Equip/Install	Water Treatment Plants	This project consists of installation of Ozone equipment and Liquid Oxygen delivery and storage facilities. Three Ozone generators will be provided to generate ozone for supply and distribution of ozonated feed gas to four ozone contactors. Once this project is completed, ozone will replace chlorine as the primary disinfectant.
9	Otay WTP Upgrade Phase 1	Water Treatment Plants	The Otay WTP Upgrades Phase 1 project will construct a new flocculation and sedimentation basin and make improvements to the sixteen existing filters. The filters improvements include granular activated carbon (GAC) filtration media and providing a pumped backwash system, a filter to waste system, replacing the filter under drains and increasing the media depth.
10	Otay WTP Upgrade Phase 2	Water Treatment Plants	The Phase 2 upgrades to the Otay WTP include construction of a chlorine dioxide shaft contactor, ClO2 generation system, sodium chlorite tank, ferrous chloride (FeCl2) tanks and feed system, powder activated carbon (PAC) facilities, reservoir circulator units, yard piping, electrical support facilities, instrumentation and controls systems, and associated site work.
11	Otay WTP Upgrade Phase 3	Water Treatment Plants	The Otay WTP upgrades Phase 3 project will construct four new filters; rehabilitate the two existing flocculation and sedimentation basins by adding plate settlers, launders and a new sludge collection system; provide an additional ultraviolet disinfection system reactor; and construct the seismic improvements identified in the Seismic Vulnerability Assessment.
12	Miramar Clearwell Improvements	Water Treatment Plants	The project is based on the rehabilitation of the clearwell roof to address structural issues and upgrade overflow to pass the total flow from the plant (current overflows will only pass approximately 40 mgs before the water surface in the clearwells reaches the underside of the roof supports). The other option for this project would be to demolish the existing clearwells and construct new ones which require $30 million. We also want to evaluate the need to add clearwell storage. Roof and related: $6,500,000.
13	AA - Freeway Relocations	Pipelines	This project provides for relocation of water lines in conflict with California Department of Transportation highway construction program.
14	AA-Water Main Replacements	Pipelines	This project replaces aged cast iron water mains

Table A-2
Capital Improvement Plan Project Descriptions

	CIP Project	Project Type	Description
15	Miramar Pipeline Monitoring	Pipelines	The condition of the Miramar Pipeline was originally assessed in 2005 under *the Miramar Pipeline Rehabilitation Project (Phases III and IV), using an* inspection technology known as the Remote Field Eddy Current/ Transformer Coupling (RFEC/TC) to identify and locate pre-stressing wire failures in the pipe wall. Miramar Pipeline Monitoring Project was created based on the results of the Miramar Pipeline Rehabilitation Project (phases III and IV), which recommended that the city perform RFEC/TC inspection of phases III and IV within approximately 5 years of the original inspection performed in early 2005. The Miramar Pipeline Monitoring project is scheduled to begin FY2009. Phase III will consist of inspecting approximately 17, 000 feet of 51-inch and 54-inch pipe along Mira Mesa Boulevard from Pacific Heights Blvd eastward to Westonhill Drive. While phase IV will consist of inspecting approximately 12,000 feet of pipe eastward from the intersection of Westonhill Drive and Mira Mesa Blvd to the Miramar Water Treatment Plant. *Pipe diameters in this section range from 60 inches to 66-inches.*
16	Torrey Pines Rd/La Jolla Blvd.-Phase 2	Pipelines	Replace ± 31,900 linear feet of 16-inch diameter Cast Iron Water Main. The construction will be done in multiple phases and at times to minimize the construction impact on the area, and in compliance with restrictions relating to when construction can be done in this area. Phase 2 replaces ± 21,200 linear feet of 16-inch Cast Iron Water Main in the La Jolla and Pacific Beach Area. The construction will be divided into three segments. Segment A starts from the intersection of Torrey Pines Road and Exchange Place and travels west on Torrey Pines Road, then turns south on Girard Avenue to Pearl Street (approximately 2,434 feet). Segment B continues from Girard Avenue on Pear Street, heads southwest to Fay Avenue to Westbourne Street, and back to La Jolla Blvd, then terminates at Mesa Way (approximately 6,936 feet).
17	La Jolla Shores Dr. 16" Water Main Repl.	Pipelines	*This project is the 3rd phases of the Torrey Pines Blvd Pipeline. It proposes* to replace ± 4,410 linear feet of 16-inch Cast Iron Water Main along La Jolla Shores Dr in the La Jolla Area.
18	Harbor Drive Pipeline	Pipelines	This project replaces the remaining portions of 16-inch cast iron water main located along Harbor Drive from Point Loma to San Diego Bay.
19	El Capitan Pipeline No. 2	Pipelines	Hydraulic analysis to determine if the size is adequate to meet the demandsCondition assessment with internal and external inspectionBased on the findings of the Condition assessment, if sections need to be replaced we will either parallel or replace in place

Table A-2
Capital Improvement Plan Project Descriptions

	CIP Project	Project Type	Description
20	El Monte Pipeline No. 2	Pipelines	This project would build a new 60-inch pipeline with capacity of 150 mgd between the Lakeside Pump Station and the Alvarado WTP.
21	Kearny Mesa Pipeline Upgrade	Pipelines	Replacement of the Kearny Mesa Pipeline. The existing pipeline was constructed in 1950 and has reached its useful service life. This is an upgrade and replacement of the 36-inch pipeline and will create interconnect for redundancy.
22	Caltrans Relocation Miramar	Pipelines	Caltrans is expanding the bridge crossing at Carroll Canyon and I-15, water lines on the bridge will need replaced with construction, pipeline will be relocated to Maya Linda.
23	CalTrans-W.Bernardo Dr-I1	Pipelines	The State of California (Caltrans) is demolishing and replacing the Highland Valley Rd (West Bernardo Drive) bridge to accommodate a four lane High Occupancy Vehicle Road. The City owns and maintains a 12-inch water main under the bridge. Caltrans will remove and replace the water main as part of its construction contract at City's expense.
24	CalTrans SR125 - Toll Road	Pipelines	Caltrans is constructing a portion of SR125 in San Diego County from SR905 to SR54. Construction of the highway requires the relocation of a portion of the Otay II and III potable water lines. Since the City has prior rights, Caltrans is required to relocate the lines at its expense. Pipelines will be relocated in the same aligned but further below the surface and will be upsized to 54".
25	CALTRANS - I905	Pipelines	Caltrans will relocate the existing 24 inch steel pipe crossing I-905 to Airway Rd. and connect back to Caliente Blvd.
26	CalTrans-EL Monte-Rte 67	Pipelines	Caltrans will be extending State Route 52 east from State Route 125 to State Route 67 in the City of Santee. The Water Department has an existing 68-inch pipeline known as the El Monte Pipeline that will require protection near Magnolia Avenue to facilitate work being constructed by Caltrans.
27	Caltrans Carroll Canyon and I-15 Potable Water	Pipelines	Caltrans is expanding the bridge crossing at Carroll Canyon and I-15, potable water lines on the bridge will need replaced with construction
28	Caltrans Carroll Canyon and I-15 Reclaimed Water	Pipelines	Caltrans is expanding the bridge crossing at Carroll Canyon and I-15, reclaimed water lines on the bridge will need replaced with construction
29	Pomerado Pipeline No. 2	Pipelines	This project provides for negotiating an agreement with the San Diego County Water for the disposition of the City's share of the Pomerado Pipeline.
30	Otay 2nd Pipeline - Isolate Service Sweetwater	Pipelines	Transfer 33 residential services for the Otay 2nd pipeline to the Sweetwater Authority. Project will involve construction of a small pump station to boost pressure from Sweetwater Authority.

Table A-2
Capital Improvement Plan Project Descriptions

	CIP Project	Project Type	Description
31	Otay 2nd Pipeline - Cathodic Protect Otay Ranch	Pipelines	17,000 feet of existing pipeline between the South San Diego Reservoir and Olympic Parkway require installation of cathodic protection.
32	Otay 2nd Pipeline - Cast Iron Replacement Phase	Pipelines	This project includes the installation of approximately 1.3 miles of new 42-inch welded steel pipe in 54th Street between El Cajon Blvd and Chollas Station Road which will provide a means to bypass 3.5 miles of the 36-inch cast iron pipeline, located west of 54th Street, abandonment of 1200 feet of existing 36-inch cast iron pipe. This segment includes flow meters, pressure control valves, and connections to the Trojan, Otay I and II and Mid City Pipelines. Also, this project consists of replacement of approximately 3000 feet of existing cast iron pipe in 54th Street with new 16-inch PVC distribution pipelines that will maintain the City's reliable source of potable water.
33	Otay 2nd Pipeline - North Encanto Replacement	Pipelines	The North Encanto Replacement is one of the City of San Diego's most important treated water transmission mains because of its ability to move water between the Alvarado and Otay services, providing great operational flexibility and system reliability. It is also one of the City's oldest pipelines with sections of 36-inch diameter cast iron pipe that are more than 75 years old. The City has received a very good service life out of this pipeline but it is undoubtedly deteriorated due to age and corrosion. To provide the reliability needed in the City's water distribution system, the City has decided to replace approximately 7,000 feet of deteriorated or inaccessible pipe between State Route 94 and the 65th and Herrick Pump Station. The project alignment extends from the intersection of Tooley and 60th Streets, traversing south along 60th Street to Brooklyn Avenue, where it turns eastward and extends along Brooklyn Avenue to Otay Street, turning southeast and extending along Otay Street to the intersection of Herrick and 65th Streets.
34	Lindbergh Field 16in Cast Iron Replacement	Pipelines	This water main must be relocated from underneath the tarmac (landing strip) at Lindbergh Field to a location that is more accessible for operation and maintenance.
35	La Jolla/Pacific Beach - WTR	Pipelines	The installation of approximately 5595 linear feet of 16-inch Water Main Replacement between Camino de la Costa and Tourmaline Street along La Jolla BlvdThis project replaces old and deteriorated 16-inch cast iron mains.
36	Fault Crossing Retrofits to Large Pipelines	Pipelines	There are six large diameter pipelines that cross the Rose Canyon Fault that have been determined vulnerable. It is recommended to retrofit the pipelines *using new fault tolerant pipelines and/or install manual isolation valves on* either side of the fault. Currently, WD/CIP pursue the pipeline installation of valves and manifolds per FEMA grant for five pipelines (kearny Mesa, Alvarado 1, Upas Street, Thorn Street, and Laurel Street pipelines.

Table A-2
Capital Improvement Plan Project Descriptions

	CIP Project	Project Type	Description
37	Landslide/Liquefaction Pipeline Mitigation	Pipelines	Install 40 pipeline manifold and isolation valve sets at critical backbone pipeline locations that traverse high liquefaction and high landslide zones. Currently, WD/CIP pursue the pipeline installation of valves and manifolds per FEMA grant for nine pipelines (kearny Mesa, Montgomery-2 sites, Clairemont Mesa, Alvarado 2, Miramar, Miramar Extention, Rancho Bernardo, and Commercial Street pipelines).
38	AA - Water Pump Station Rehabilitations	Pump Station	Many of the pump stations in the water transmission and distribution system have been in service for many years. Some are over 50 years old, and have not been upgraded with more efficient pumps and motors, have worn check and isolation valves and outdated electrical and central systems. This annual allocation CIP project is to upgrade some of these facilities to improve operational efficiency and reliability.
39	Tierrasanta (Via Dominique) Pump Station	Pump Station	Shifting of the water source from the CWA Aqueduct to the Miramar WTP via Pomerado pipeline will reduce suction pressures to this pump station. To compensate for lower suction pressures during summer peaking, the pump station will need to be upgraded.
40	Soledad Pump Station Upgrade	Pump Station	The efficiency, reliability and maintainability of this pump station has diminished over the past 40 years and it is now in need of upgrading.
41	Scripps Miramar Pump Station Upgrade	Pump Station	Rapid growth in the Scripps Miramar Pump Station service area, the lack of adequate redundancy and maintenance needs require immediate upgrade of this pumping station.
42	Tierrasanta Norte Water Pump Station	Pump Station	This project includes the installation of four end-suction centrifugal pumps inside the existing, unused SD #16 flow control facility. The existing building is 18-feet by 17-feet 8-inches by 10-feet 5.5-inches high. The pumps will be one 25 hp (1,200 gpm at 65 feet TDH) and three 50 hp (2,150 gpm at 65 feet TDH) pumps. Roof hatches will be added to the existing building for future installation and removal of the pumps and motors.
43	Rancho Penasquitos Pump Station	Pump Station	Project calls for the design and construction of a new pump station and a new Del Mar pressure reducing station near the site of the existing stations. The new station will house 5 new vertical pumps each rated at 6000gpm and an additional pump can for future expansion. The Del Mar pressure reducing station will be replaced with a new facility.
44	Serra Mesa Pump Station	Pump Station	This project consists of constructing a new water pump station with (5) five 5-mgd pumps. One pump will be a standby. Total pump station capacity will be 20-mgd. The pump plant will pump water from the Alvarado Zone (536) to the Northwest Mesa Zone (currently 559, that will be increased to 600). Emergency power will be provided by portable, engine-generator sets. The pump plant will connect to the existing 36-inch Kearny Mesa Pipeline.

Table A-2
Capital Improvement Plan Project Descriptions

	CIP Project	Project Type	Description
45	Parkland Pump Station	Pump Station	This project entails replacing the Paradise Mesa Pump Station No. 1 and No. 2 with a new pump station (located at the Paradise Mesa No. 1 site), improving efficiency and reliability, and allowing for substitution of San Diego City water for San Diego County Water Authority (SDCWA) water now provided via the SDCWA #19 Paradise Mesa Crosstie.
46	AA - Standpipes and Reservoirs	Storage Facility	This project has identified 20 treated water reservoirs for upgrades and demolition.
47	AA - Dams and Reservoirs	Storage Facility	This project includes a broad range of improvements at various dams and raw water reservoirs throughout the system. These include resurfacing access roads, rehabilitation of berms, reservoir aeration systems, installing fencing and security systems, installing lighting around dams, sandblasting and shotcreting dam surfaces, installation of weather stations and water level sensors, rehabilitation or replacement of bridges, ladders and other access systems, installation of remote operators and or/valves, seismic upgrades to specific facilities, plus making other improvements.
48	Barrett Reservoir Outlet Tower Upgrade	Storage Facility	The Barrett Reservoir dam is a concrete gravity structure with a 120-foot high outlet tower with 26 automatic flash gates located on the spillway. The Design Report recommended the following upgrades: replacing piping, valves and bulkheads, replacing the roof, improving ventilation, repairing concrete surfaces and replacing 26 dam spillway gates. Due to WD budget constraint, the project scope of work has been revised to address the essential appurtenances as required by Water Operations Division and Department of Safety of Dams such as replacing piping, valves, replace platform structures and railings, install mechanical ventilation system, electrical and instrumentation system, including dredging.
49	El Capitan Reservoir Rd Improvements	Storage Facility	Upgrade 2.5 miles of access road to the reservoir, starting at the base of the dam and proceeding counterclockwise around the reservoir to the southern tip of the lake. The road will be repaired and portions widened in this project.
50	Morena Reservoir Outlet Tower Upgrade	Storage Facility	The existing Morena Dam is a rock embankment dam with a parapet wall creating a dam 171- feet high above the original stream bed. The outlet tower is 132 feet from the operating floor to the center line of the outlet tunnel. The piping and mechanical system of the outlet tower will be replaced or repaired. The project will include the construction of two sluice gates at the spillway to meet emergency Division of Dam Safety (DODS) drawdown requirements.

Table A-2
Capital Improvement Plan Project Descriptions

	CIP Project	Project Type	Description
51	Rancho Bernardo Reservoir Upgrade	Storage Facility	The project calls for the rehabilitation of the 10-million gallon, trapezoidal-shaped concrete reservoir. Work will include improvements of the beam connection, repairs of the roof slab and columns and a seismic retrofitting to bring the reservoir up to code compliance mandate by Water Department and State Department of Health Service standards.
52	Lower Otay Reservoir - Emergency Outlet Improvement	Storage Facility	The existing Savage Dam creates the Lower Otay Reservoir. At the present time, 56 days are required to achieve a 10% drawdown of the reservoir through the existing 40-inch (48-inch prior to slip lining) outlet pipe. State regulation requires 10% drawdown in a maximum of 10 days. This project will increase the drawdown rate by installing dual 48-inch drain pipes through the existing auxiliary spillway (in addition to existing 40-inch described above). Installation will include two 48-inch butterfly valves and 48-inch flap gates on the spillway bulkheads and intake screens on the upstream end. Length of each pipe will be 70-feet. Maximum existing grade over the pipes is approximately 10-feet above the intended drain pipe invert. This project will also include the seismic retrofit of the outlet tower.
53	Pomerado Park Reservoir Upgrade	Storage Facility	The Pomerado Park Reservoir has a capacity of 5.2 million gallons, and was constructed in 1969. This project includes safety, sanitation, appurtenance, exterior and interior surface restoration, seismic cathodic protection, and structural improvements.
54	Paradise Mesa Standpipe Rehabilitation	Storage Facility	The Paradise Mesa Standpipe was erected in 1979. It is 120-feet tall, with a diameter of 60-feet, and a capacity of 2.5 million gallons. This standpipe services the 610 Pressure Zone. Current seismic standards require that the standpipe be either retrofitted at the foundation to reduce the changes of failure in the event of an earthquake, or reconstructed. A detail analysis between rehabilitation and new installation indicated that two options are very comparable for costs while there are so many benefits in construction of new tank. Some of these benefits are minimal construction restriction and duration constraint, minimal environmental and health risks due to lead-containing primer and coal-tar coating, less operational risks, superior tank with higher life expectancy and less maintenance costs.

Table A-2
Capital Improvement Plan Project Descriptions

	CIP Project	Project Type	Description
55	La Jolla View Reservoir	Storage Facility	The La Jolla View Reservoir is a steel tank measuring 70 feet in diameter by 25 feet in height, with a storage capacity of 0.72 million gallons and an overflow elevation of 525. It was built in 1949 to service the pressure system at the time, which was approximately 525 but subsequently increased to 610. The reservoir elevation is too low for the 610 system. This project includes demolition and removal of the old tank, and construction of a new 5.65 million-gallon concrete reservoir at an overflow elevation of approximately 570 feet. The tank will be constructed underground with a small deck above the ground access building.
56	La Jolla Exchange Place Reservoir	Storage Facility	The La Jolla Exchange Place Reservoir is a covered concrete reservoir with a storage capacity of 1.0 million gallons and an overflow elevation of 273. It was constructed in 1909 to operate in the 270 zone. It currently serves only as a forebay to the onsite Exchange Place Pump Station which pumps from 267 to 610. It is rarely used except to maintain the water quality within the reservoir. This project includes demolition of both the La Jolla Exchange Place Reservoir and Exchange Place Pump Station. The 1.0 million gallons of emergency storage will be consolidated into a new La Jolla View Reservoir at a higher location within the 610 zone, eliminating the need for pumping.
57	La Jolla Country Club Reservoir Seismic Upgrade	Storage Facility	This project will be necessary to perform a seismic study to make sure the reservoir meets current seismic standards.
58	Murray Outlet Tower	Storage Facility	Retrofit from interior. A planning study should analyze the outlet tower's current capacity and its ability to provide flow to Alvarado Treatment Plant if the CWA Aqueduct and El Monte Pipeline fail in a seismic event.
59	San Carlos Reservoir Interior Enhancement	Storage Facility	The San Carlos Reservoir Interior Enhancements Project will install a synthetic membrane lining system to prevent leakage from the 5.0 MG prestressed wire-wrapped concrete circular potable water tank located at the intersection of Wing Span Drive and Tommy Drive in the San Carlos community. The reservoir, originally built in 1965, was substantially rehabilitated in 2001. That work included a seismic retrofit plus valve, pipeline, and appurtenance upgrades to bring the facility up to code. This is the final step in the complete rehabilitation process.

Table A-2
Capital Improvement Plan Project Descriptions

	CIP Project	Project Type	Description
60	Lake Hodges Dam Modification	Storage Facility	Construction of a parapet wall on top of the Hodges dam. The geotechnical study of the dam foundation determined that dam overtopping flows could potentially erode the left abutment of the dam during a Probable Maximum Flood event and compromise the stability of the dam. The parapet wall will protect the dam and mitigate the possible overtopping.
61	*Morena Dam Grotto*	*Storage Facility*	*The grotto was formed before the Morena Dam was constructed, however the* presence of the grotto was not known to the City Operations staff until 1992 when the members of the San Diego Grotto, National Speleological Society (grotto society) discovered the grotto. The DSOD has shown concern for the affect the grotto has on dam stability.
62	AA - Pooled Contingencies - RWDS	Reclaimed Water	This CIP item provides contingency funds for expenditures incurred that are greater than the contracted amounts to install service connections of the reclaimed water distribution system to consumers.
63	AA - Reclaimed Water Extension	Reclaimed Water	Extensions of the North City reclaimed water distribution pipeline network beyond the sphere of influence of the existing North City Reclaimed Water distribution pipelines and improving the reclaimed water distribution system as the demands for reclaimed water increase.
64	Black Mountain Ranch Reclaimed Water Storage Tank	Reclaimed Water	The reservoir is a circular, above grade, metallic tank with a capacity of 3 MGD to storage recycled water. The design cost is $384,106 with an estimated total project cost of 4.7 million. Construction of the tank began in January of 2005 and it was com
65	Carmel Valley Reclaimed Water Pipeline	Reclaimed Water	This project is designed to expand the reclaimed water system into the North county. This project will install approximately 9000 LF of 12" and 8" plastic pipe. It will provide future service to the Del Mar National Golf Course and the Pacio HOA.
66	Los Penasquitos Canyon RWP Part Agmt	Reclaimed Water	Part of the North City Reclamation System. The project wall facilitates moving recycled water from the North City Water Reclamation Plant to service areas in the northern region of the City of San Diego. The 9000 LF - 24" pipeline *project will begin by connecting to the suction line of the Canyonside pump* station, goes through the Canyonside Parkland, along Park Village Road and Camino Del Sur.
67	Pacific Highlands RWP - Participation Agreement	Reclaimed Water	This project proposes to construct 11,770 linear feet of new 12-inch and 16-inch diameter PVC pipe, beginning East of Santa Fe Farms Road moving westerly along Carmel Valley Rd to the intersection of SR 56.

Table A-2
Capital Improvement Plan Project Descriptions

	CIP Project	Project Type	Description
68	Camino Del Sur RWP - E&CP	Reclaimed Water	This proposed recycled water pipeline is part of the Camino Del Sur Road extension project. This pipeline includes the construction of approximately 3,300 linear feet of 24-inch diameter steel recycled water pipeline to be constructed concurrently with the road extension. This will provide a vital connection to serve recycled water to the Rhodes Crossing Development, Torrey Highlands (Subarea IV), Fairbanks Highlands, Pacific Highlands, Carmel Valley and future customers in the 500 Zone. This proposed project is an integral part of the City's reclaimed distribution network since it is the piece needed to charge the system to serve SR-56 and customers in Pacific Highlands.
69	Camino del Sur Recycled Water P/L- Participation Agreement	Reclaimed Water	The Camino Del Sur RWP (Participation Agreement) is located in the Rancho Penasquitos /Torrey Highlands area of the City of San Diego. A portion of which lies within the North City Planned Urbanizing Area (NCPUA) Subarea IV and along the State Route 56 as it crosses the southern extensions of Carmel Mountain Road and Camino del Sur within Subarea IV. The proposed project is a 24-inch recycled water transmission main on Camino del Sur. The City will enter into a participation agreement with the developer to construct the pipeline concurrently with the construction of Camino del Sur
70	Mission Valley Groundwater Desalination	Groundwater	This concept project proposes to extract and desalinate 2,000 AFY from the western portion of the basin for potable use. Two extraction wells, with an average yield of 1,000 gpm, would be necessary. Approximately 1,700 AFY (1.5 mgd) of desalinated water and 300 AFY (0.27 mgd) of brine would be produced.
71	San Pasqual Brackish Groundwater Desalination Demo	Groundwater	This project component entails extracting 5,800 AFY of groundwater from the western portion of the basin and desalinating it by means of a RO water treatment plant. The water supply produced will be approximately 5,000 AFY.
72	San Pasqual Brackish GRD Demo	Groundwater	The project entails extracting and desalinating groundwater, resulting in the production of 250 AFY of desalinated water.
73	San Diego Formation Desalination	Groundwater	Based on available information, it is recommended that the City consider the implementation of a two-phased project. The first phase will consist of the extraction of 3,300 AFY of brackish groundwater, to produce 2,800 AFY (2.5 MGD) of desalinated water. Based on the results of additional investigations and on observations of the aquifer during the operation of the first phase, the City could consider the implementation of a second phase, for a total capacity of 5.0 MGD.

Table A-2
Capital Improvement Plan Project Descriptions

	CIP Project	Project Type	Description
74	Groundwater Pilot Production Wells	Groundwater	Construct a pilot production well at up to four sites, perform Aquifer tests and hydrogeological analyses of basins in which wells are installed to determine feasibility of further development, conduct environmental studies, water quality assessments and economic feasibility analysis.
75	SD 17 Flow Control Facility (Alvarado)	Security	This project is the construction of a pump plant to feed the Mid-City Pipeline from the Alvarado Water Treatment Plant. This pump plant and the Mid-City Pipeline provide required redundancy for, and relieve the capacity load on, the existing Trojan Pipeline, which is the "backbone" transmission facility of the Alvarado water supply system. To avoid the high cost of crossing Interstate 8 (I-8), the pump plant discharge pipe will be connected to the San Diego County Water Authority's (SDCWA's) Pipeline 4B at a location north of I-8. Water is taken out of Pipeline 4B south of I-8 at the Mid-City Pipeline connection. The pump plant will have a total capacity of 93 cubic feet per second (cfs). Approximately 200 feet of 72-inch diameter steel pipe will be installed to transmit water from the Alvarado Water Treatment Plant into the SDCWA's Pipeline 4B. This project will also include a Flow Control Facility to allow the City to draw water from Pipeline 4B.
76	Water Dept. Security Upgrades	Security	This CIP project was created in compliance with the Vulnerability Assessment Report (VA), dated December 31, 2002. Thus, it will design and install miscellaneous security systems at various facilities to improve security, control entry and reduce opportunities for intrusion of unauthorized persons. The VA recommended $20,430,000 in upgrades on existing water facilities. Individual sub-projects may be created, as required.
77	Water Dept. Security Upgrades - Miramar	Security	This CIP project was created in compliance with the Vulnerability Assessment Report (VA), dated December 31, 2002. Thus, it will design and install security systems at various Regulators to improve security, control entry and reduce opportunities for intr.
78	AA - Corrosion Control	Miscellaneous	This Annual Allocation will fund the installation of corrosion protection (such as "anode beds" and "deep well anodes") to extend the service life of existing facilities. Individual sub-projects will be created as required.
79	AA - Pooled Contingencies - Water	Miscellaneous	This CIP item provides for contingency costs, as required, for all water projects that are greater than the contracted amounts.

Table A-2
Capital Improvement Plan Project Descriptions

	CIP Project	Project Type	Description
80	AA - Meter Boxes	Miscellaneous	Annual Allocation for Replacement of Meter Boxes as needed.
81	AA-Pressure Reducing Stations	Miscellaneous	This annual allocation will install new pressure reduction facilities, and replace of upgrade existing pressure reduction facilities to meet present and future water demands. Individual sub-projects will be created as required.
82	Miramar Service Area Improvements	Miscellaneous	Unidentified projects that require funding per master planning study.
83	Alvarado Service Area Improvements	Miscellaneous	Unidentified projects that require funding per master planning study.
84	Otay Service Area Improvements	Miscellaneous	Unidentified projects that require funding per master planning study.
85	Kensington Pressure Regulator	Miscellaneous	The completion of Mid City Pipeline Project and it operation at the design pressure level will enable to increase the pressure throughout the Normal Heights areas. The Kensington Park Villas community is located at the lowest elevation within Normal Heights; this pressure increase will result in over pressurizing of the Community's water distribution system. The pressure Regulating Stations (PRS) provides more consistent water pressure throughout the Community and would serve to avoid pipe ruptures or other problems due to over pressurizing.
86	Alvarado Water Quality Lab Roof Replacement	Miscellaneous	This project replaces the roof on the water Quality Lab located at the Alvarado Water Treatment Plant.
87	Barrett Flume Cover	Miscellaneous	Each year, golden eagles, deer and other wildlife drown in the open channel section of the Barrett Flume. This 10 - 12 mile open channel section is also causing an excessive maintenance burden to keep out soil, sediment and sunlight-caused algae build-up. Covering of the open flume sections is necessary to preempt fines and sanction from the resource agencies, to maintain water quality, and to reduce maintenance and down time.

Appendix B
CIP Construction Cost Estimates
City of San Diego SOP

CITY OF SAN DIEGO, CALIFORNIA	NUMBER	DEPARTMENT
Standard Operating Procedure	SOP – xxx MRN	**Engineering & Capital Projects**
SUBJECT	PAGE OF	EFFECTIVE DATE
CIP Construction Cost Estimates	SUPERCEDES DI- PAGES	DATED

1.0 PURPOSE:

This Standard Operating Procedure (SOP) provides the following general guidelines in the preparation of reliable construction cost estimates of Capital Improvement Projects (CIP):

- Preparation of the Engineer's Estimate and associated construction costs
- Types of construction cost estimates
- Construction cost estimating approaches
- Available cost estimating resources
- Ranges of construction administration & contingency costs
- Cost estimate submittals & expected accuracies at various stages of design
- The roles & responsibilities of the participants in the cost estimating process

2.0 SCOPE:

This SOP provides the information and approaches for the preparation of CIP construction cost estimates and related administration costs. Project Managers (PM) should determine the best construction cost estimating approach and level of effort suitable for the specific CIP project.

This SOP focuses on the construction cost estimation of in-house designed CIP projects rather than those prepared by design consultants. This SOP specifically covers the construction administration and contingency cost estimates associated with both in-house and consultant designed projects.

3.0 BACKGROUND:

An accurate construction cost estimate is essential to successful project management and a requirement for the service provider's and client's sound fiscal budgeting. Large variances between the engineering estimate and actual contractors' construction bids can delay the award of projects and creates additional activities (e.g. 1472, re-advertise, reduction in scope, etc) that the PM must perform to ensure the successful construction-award of the project.

4.0 RESPONSIBILITY:

The PM is ultimately responsible for the construction cost estimate's completeness and accuracy. It is also the PM's responsibility to ensure this SOP is adhered to and that the Section Head reviews the estimates. The Project Engineer (PE) applies this SOP during the preparation of project cost estimates to maintain uniformity in the development of the estimates and to facilitate review by various project participants.

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5.0 PROCEDURE:

CIP Cost Categories - At a high level, a CIP's cost is made up of design and construction costs, each of which include contractual and City labor charges. City labor charges are incurred as part of design, administration, and processing activities. Table 1 below lists the high level elements that make up a project's costs. The SOP addressing Total Project Cost Estimation will address Design (item A). Administration and Engineering is estimated and accounted for under the Design Cost Estimate. Administration and Engineering includes the preparation of the construction drawings (specifications and plans) as well as the project management/design staff's administration of the project as a whole, from start of design until project close-out.

This SOP addresses the Construction Cost Estimate element (Table 1, item B), and all sub-elements (e.g. Engineer's Estimate, Contingencies, and Field Engineering). The Engineer's Estimate is the Project Engineer's estimate of the Construction Contract that will be bid and awarded for construction.

Of the elements listed in Table 1, item B1a (Bid Item Quantities) is one of the most complex estimating methodologies presented in this SOP.

Table 1 – Cost Categories (Elements of a CIP's Total Budget/Costs)

A - Project Design Costs	20% to 40%	Of Total Budget *
1 – Administration		
2 – Engineering		
B - Project Construction Costs	60% to 80%	Of Total Budget *
1 - Engineer's Est (Constr Contract)	30% to 60%	Of Total Budget *
a – Bid Item Quantities		
b – Mobilization	5% to 10% (1)	Of Construction
c – Traffic Control	5% to 10% (2,3)	Of Construction
d – Water Pollution Control	2% to 5% (1)	Of Construction
e – Bonds	2.5% (4)	Of Construction
f – Field Orders	2.5% to 10% (3)	Of Construction
2 – Contingencies	10% to 15%	Of Construction
3 – Constr Admin – Field Engineering	10% to 15%	Of Construction

** Total Project Budget (costs) = (Design Costs) + (Construction Costs)*

(1) Depending on location
(2) Depending on ADT
(3) Depending on project complexity
(4) Per specification

The range in percentage values listed in Table 1 reflect the varying complexities of a project as well as the varying site conditions that may be encountered (e.g. roadway vs. building, pipeline

vs. bike path). It is not in the scope of this SOP to provide values for each of the asset and project types encountered, but instead to provide a guideline for achieving the standard industry values.

Note that construction "**contingencies**" (item B2 in Table 1, page 2) is an amount other than the Engineer's Estimate (construction contract cost) that is set aside as a reserve for unforeseen construction conditions. The Engineer's Estimate does not contain the contingency amount. This amount is applied to in-scope activities only and not to be used for out of scope items or activities.

Cost Estimate at 10% (Conceptual) Design (Planning Package): The operating division or asset planning group prepares this cost estimate once the project is identified and resources for implementing the project are being determined. This cost estimate accompanies the preliminary engineering package and is considered a rough estimate that requires field and technical validation by the assigned PM.

Cost Estimate at 30% (Preliminary) Design: This cost estimate is developed once the Project Manager receives the planning (pre-design) package (10% Design) from the client department or the Preliminary Engineering Section. This estimate is the first construction budget developed from project specific design criteria. This estimate is submitted with the 30% design. The framework of this estimate is based on quantities and unit price models developed from the design criteria, site layout, soils reports and the completed 30% Design Plans. This cost estimate has an expected accuracy of +30% to -15% of the actual cost of construction.

Cost Estimate at 75% Design: This cost estimate is an extension of the Cost Estimate at 30% Design. It is the interim budget cost estimate developed to conform to the latest project-specific design criteria. This estimate is submitted with the 75% design. The framework of this estimate is based on quantities and unit price models further refined by field investigation or revised assumptions from the design criteria, site layout, soils reports and the completed 30% Design. This estimate includes unit prices associated with environmental review, mitigation requirements, and discretionary permits. This cost estimate has an expected accuracy of +20% to -10% of the actual cost of construction.

Cost Estimate at 90% Design: This cost estimate is an extension of the Cost Estimate at 75% Design. This is a semi-final cost estimate which is sent to Field Engineering Division along with 90% design plans for Constructability Review. This is the most detailed estimate of all the previous estimates, where the project scope is close to being completely defined. Given that this project is close to design completion and near-ready to advertise and award, cost figures should reflect the most recent bidding updates. This construction cost estimate has an expected accuracy of +10% to -10% of the actual cost of construction.

Cost Estimate at 100% (Final) Design: This cost estimate is referred to as the "Final Engineer's Estimate". This estimate is prepared once all plan check comments have been

incorporated into plans and Constructability Review is completed. The estimate is intended to serve as the final project cost plan, a comparison to the interim budget level cost estimate, and the Analysis of Construction Bids.

Cost Estimation Approaches and Methods - There are two approaches to cost estimating, under each of which there are several methods (techniques) available:

Cost Estimating Approaches

- **Top Down** - Relates to total costs, or costs of major elements, of similar projects. Under this approach, the estimate begins with a total figure and is then broken down into smaller parts, progressively detailing the estimate until all project elements are accounted for. The PM/PE should be cautious when using this approach since certain project details may be overlooked and would result in an undervalued total project cost. The Top Down approach utilizes a **Work Breakdown Structure** (WBS) method. This involves stating the work at a high level (top-down) and then breaking the work (e.g. products or tasks) into smaller components called activities. Each of the WBS activities identifies the associated dollar (labor and material) and scheduling (duration, start and end times) details. Other additional costs, not included in these items, are allocated as a percentage of the total cost components. These components appear as separate line items in the cost estimate summary as follows: Field Engineering, Bonds, Mobilization, Traffic Control, and Water Pollution Control. While this approach requires more effort than other methods, if the PE understands the work well and ensures that the required work is included in the work breakdown structure, an accurate estimate may be achieved.
- **Bottom Up** – Breaks the product into smaller elements and estimates each individually. The individual elements are then grouped back together to come up with an overall cost estimate. The PM/PE should use caution when using this approach because the risk associated with this approach is in being overly conservative on each of the individual elements to where the total cost estimate is inflated.

Cost Estimating Methods

- **Ratio** – Applies *fixed ratios* to costs of major elements based on previous similar projects. While all projects are considered to be unique, some projects are similar in scope to others. Using the Ratio cost estimating method, the PE looks for similar projects previously (and most recently) completed and then estimates work based on the actual cost required for the completed project. This is a reliable method for estimating work since it utilizes actual historical data; however, the projects must be similar in scope and the completed project must have detailed and accurate accounting.
- **Parametric** - This approach follows, in principle, that of the Ratio Method but instead of a fixed ratio, the Parametric Method uses a more complex correlation of smaller element costs to larger ones (e.g. based on size, quantity, complexity, technique, etc...).
- **Standards** – Estimates every project element using published or in-house standard cost for that element. Standard estimates may be ratio-based or parametric, but the data used is a compilation and the source of the projects is unknown.

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Construction Cost Estimate Submittals & Updates - Construction Cost Estimates are prepared at each stage of design (identified in Table 2). Additionally, in between any of the above stages of design, construction cost estimates are updated at a minimum of every 6 months, or when there is a change or new information on the project or the project is being re-initiated (removed from the shelf). These changes/ new information include:

- change in scope (reduction or additions)
- change in site conditions (recent construction activity or discovered utilities)
- recent spike or dip in material prices
- change in construction phasing

Anytime a project is shelved for more than 6 months, cost figures should be updated to match the latest unit price data. Where projects have been shelved for more than 1 year, a site visit and a redefinition of all the project scope elements is necessary to reflect changes in existing field conditions.

Table 2 – Design Submittals

Design Stage	Type of Submittal	Expected Accuracy	Submitted To
10%	Conceptual		Stakeholders/ Project Manager
30%	Preliminary	+30% to -15%	Stakeholders/ Client/ Permit Applications
75%	Intermediary	+20% to -10%	Client
90%	Substantial	+10% to -10%	Citywide
100%	Final	+10% to -10%	Advertise

The PE provides the following types of construction cost estimates (in current dollars) to the Project Manager for review and comments during design (see Table 2).

Each cost estimate is titled to correspond with the design completion stage and the type of estimate. The cost estimate includes an assessment of the difficulties inherent in the construction work and documents the price determinations and the assumptions for preparing the cost estimates. This may include factors such as labor conditions, construction equipment, construction supervision, material costs, and equipment installation costs. All reasonable costs a Construction Contractor can expect to incur are also included.

The construction cost estimate includes the line items listed in Table 1.

Following completion of the 90% Design, the PE participates in cost estimate review meetings with the PM and QA/QC Group to reconcile cost estimates and discuss each party's respective cost estimate.

Construction Cost Estimation Accuracies - The accuracy of the estimate is dependent upon what is known, what is assumed, and what is unforeseen at the time the estimate is prepared.

Furthermore, it should be noted that, while the Engineer's Estimate attempts to forecast the cost of the proposed work, the estimate may not always closely correlate to the low bid. Variances are expected because of the nature of Public Works contracting. Items that contribute to these variances include:

- Errors by contractors in preparing bids (i.e. both quantity takeoff & pricing errors).
- Competitive nature of bidding as a result of market conditions, number of contractors submitting bids, importance of the project to a particular contract or contractors.
- The level of refinement of the scope of the project and/or the project construction documents. (i.e., completeness and accuracy of the drawings and subsequent interpretation of the drawings by the bidders).
- Significant fluctuations in the cost of materials, labor, and equipment.
- Recent experience with similar projects.
- The complexity of the project, type of construction, and age of existing facilities.

City Forces Work - All City furnished equipment or materials and all labor costs (e.g. those associated with Water Department system shutdowns, connections, and water service highlining) are excluded from the construction cost estimates submitted by the PE unless otherwise required by the Project Manager. Installation costs for these items incurred by the Construction Contractor are included in the cost estimate. Note that non-contractor expenditures that would be incurred as part of constructing the project (e.g. environmental mitigation) should be identified and noted in the overall project budget.

Special Benefits and Maintenance Costs - The costs associated with special benefits and long term maintenance (irrigation, landscaping, non-standard elements such as streetlights, color concretes, etc), are not included in the construction cost estimate. However, the PM is responsible for ensuring that the funds are available for these activities (i.e. Maintenance Assessment District, Service Level Agreement, etc.).

Cost Estimates for Projects Receiving Federal and State Grants - For projects funded with Federal/State monies, the PM must take into account increases per unit item for costs associated with increased wage rates (prevailing wages) that the contractors are required to pay their employees.

Cost Estimating Spreadsheets – While the use of computerized cost estimating software is preferred if available, spreadsheets are considered equally dependable tools for generating cost estimates provided they have the most recent unit prices and most accurate quantities inputted. Spreadsheets must clearly label the item, quantity, and unit price applied and the construction item must be clearly identified on the associated construction plans and construction specifications' bid list.

Cost Estimates Documentation - The PE maintains a file documenting justification for the cost estimations prepared at all stages of design. The documentation file includes, at a minimum,

the sources, methods, quantities, and prices used in developing the cost estimates (as applicable) such as:

- A reference of the source of unit prices used
- Quotations with estimated installation costs
- Completed project title(s) & CIP number(s) used for cost comparisons
- Details, sections, and sketches used to perform typical quantity takeoffs

6.0 DEFINITIONS:

***Bid**: The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work.*

***Bond**: Bid, performance, and payment bond or other instrument of security.*

***Consultant:** One who provides a specialized service based on their special qualifications, education, or experience.*

***Contingency**: An amount other than the Engineer's Estimate that is set aside as a reserve for unforeseen construction conditions – this amount is to be used on in-scope items only and not to be used for scope creep items.*

***Engineer's Estimate:** The projected cost of construction based on completed design and detailed cost estimates.*

***Mobilization**: Process of activating resources including labor, equipment, and supplies. The process includes setup at or near location of work to attain full or partial readiness to commence construction activities.*

***PE (Project Engineer)**: Assistant to the PM responsible for close oversight of project design details.*

***PM (Project Manager)**: Ultimate responsible individual for the management of all project resources and project overall quality.*

***Prevailing Wages**: Higher wages imposed on federal and state funded projects.*

***Shelved Project**: A project where no active processing or review has been conducted.*

***SWPPP**: Storm Water Pollution Prevention Plan for permit compliance during construction activities.*

***Unit Price**: The amount stated for a single unit of an item of work.*